



Gc  
974.401  
Es7es  
v.5-6  
1425136

M. L

GENEALOGY COLLECTION

ALLEN COUNTY PUBLIC LIBRARY



3 1833 01101 1159



Digitized by the Internet Archive  
in 2013

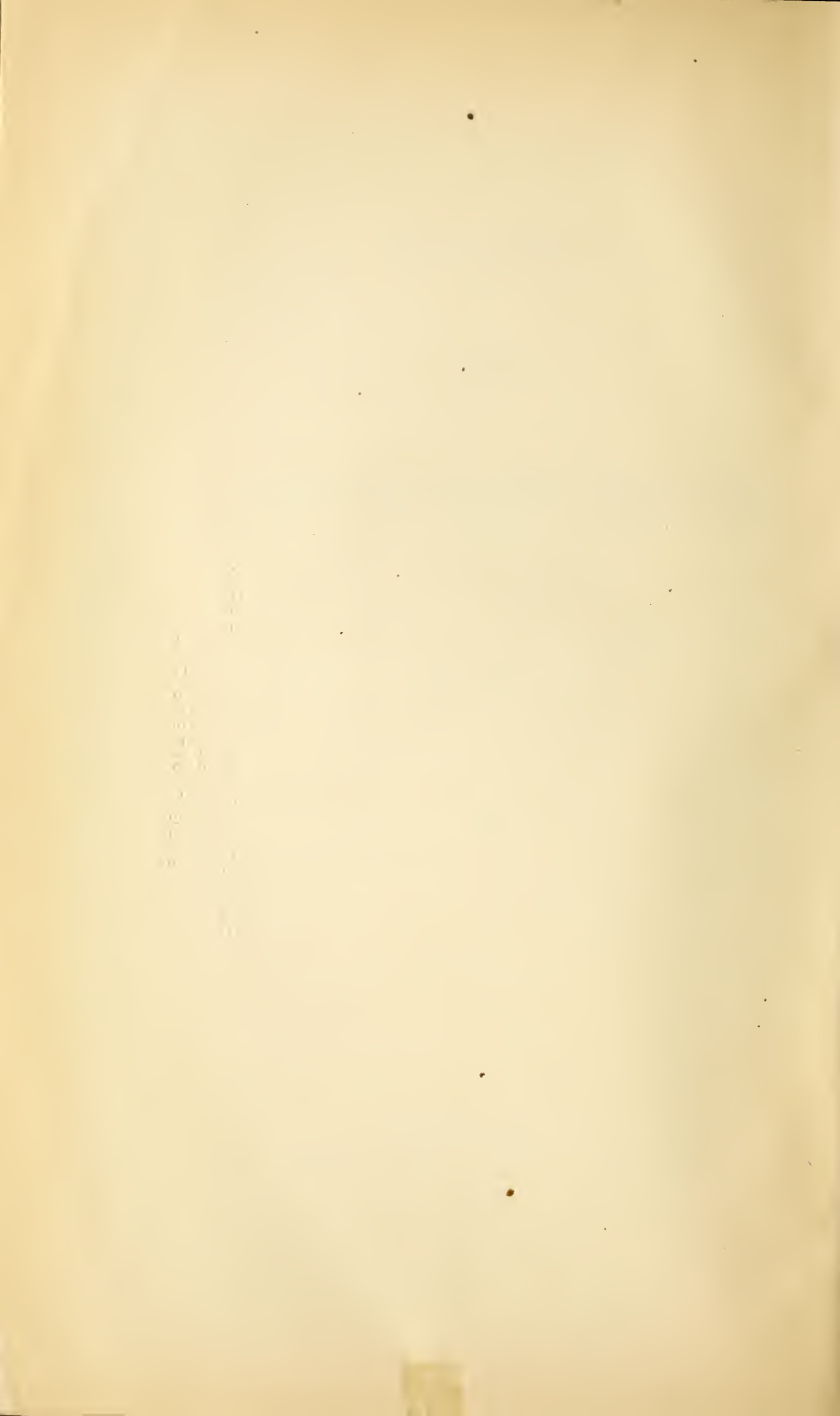


BULLETIN  
OF THE  
ESSEX INSTITUTE,  
VOLUME V.  
1873.

---

SALEM, MASS.  
PRINTED AT THE SALEM PRESS.  
1874.

51798



# 1425136

## CONTENTS.

Regular Meeting, Monday, January 6, . . . . .	1
Communication by A. S. Packard on the Glacial Phenomena of North-eastern America compared with those of Europe, 1.—Remarks of the President on the History of the Society, 3.	
Letters Announced, 3, 4, 10, 15, 25, 26, 77, 87, 98, 101, 106, 120, 130, 150, 163, 165, 196, 202.	
Adjourned Meeting, Saturday, January 11, . . . . .	4
Regular Meeting, Monday, January 20, . . . . .	4
Communication by Rev. E. S. Atwood on Dr. Emerson's Excursion to Philadelphia Fifty Years Ago, 6.	
Additions to the Library, 5, 10, 15, 26, 77, 101, 106, 120, 130, 150, 163, 165, 196, 262.	
Regular Meeting, Monday, February 3, . . . . .	10
Worms of the Genus Nais, by J. H. Emerton, 12.—Notice of the death of Henry C. Perkins, M.D., 13.—Resolutions adopted, 15.	
Additions to the Museum, . . . . .	11, 78, 102, 167.
Regular Meeting, Monday, February 17, . . . . .	15
Communication by S. M. Allen on Ancient and Modern Theories of Light, Heat and Color, 17.	
Regular Meeting, Monday, March 3, . . . . .	25
Notice of the death of Mr. A. F. Bosson, and Resolutions adopted, 25.	
Regular Meeting, Monday, March 17, . . . . .	26
A Partial Catalogue of the Birds of Grand Menan, by H. Herrick, 28.	
Anniversary Meeting, Wednesday, March 5, . . . . .	42
Remarks of the President, 45; of Gov. Washburn, 54; of Mayor Cogswell, 57; of Hon. M. P. Wilder, 58; of Prof. O. C. Marsh, 62; of J. D. Runkle, 62; of Hon. George B. Loring, 63; of Nath'l Paine, 65.—Poem by Rev. E. S. Atwood, 66.—Remarks of S. M. Allen, 70.—Letters from S. Salisbury, 72; J. G. Whittier, 73; E. P. Whipple, 73; Benj. Peirce, 73; Rev. George D. Wildes, 74; Daniel C. Eaton, 75; R. C. Winthrop, 75; J. Wingate Thornton, 75.	
Regular Meeting, Monday, April 14, . . . . .	77
Notice of a Pocket Bible from Miss M. C. Anderson, 78; of an Ancient Stand for a Christening Basin from N. Cleaveland, 79; of some relics of the tomb of Mrs. Deborah Fairfax from O. N. Bryan of Marshall Hall P. O., Md., 79.—A. S. Packard, on Photographs of Scenery in Colorado and Montana, 80.—Stone Knives, by F. W. Putnam, 80.	
Regular Meeting, Monday, May 5, . . . . .	87
Remarks by J. Robinson on the Floral Progress of the Year, 87; of Rev. E. C. Bolles on Batrachospermum moniliforme, 88.	
Annual Meeting, Wednesday, May 14, . . . . .	89
Retrospect of the Year, 89.—Officers elected, 98.	
Regular Meeting, Monday, May 19, . . . . .	100

Adjourned Meeting, Thursday, May 22,	101
Notice of a Portfolio containing Plans of several of the Old Houses of Salem by Samuel McIntire, from H. K. Oliver, 102; of "The First Book of Records of the Proprietors of Common Lands of Salem Village," from Miss Ruth Marsh, 102.	
Special Meeting, Monday, June 9,	103
Notice of the death of Rev. J. L. Russell, and resolutions adopted, 103.	
Field Meeting at Amesbury, Thursday, June 19,	104
Historical Notices of Ramble, 104.—Remarks of the President, 107; of Hon. A. W. Dodge, 110; of F. W. Putnam on Stone Implements, 111; of J. H. Emerton, 114; of Rev. W. H. Eaton, 115; of H. B. Crane, 115; of Dr. H. G. Leslie, 115; of Wm. Ashby, 115; of Rev. C. M. Dinsmore, 116; of W. C. Binney, 116.	
Field Meeting at Lynnfield, Wednesday, July 30,	117
Notice of the Excursions, 117.—F. W. Putnam on Toads and Fishes, 124; on an Indian Knife, 125.—Communication from N. Cleveland noticing an Herbarium, and specimens in Mineralogy collected near Erzurum in Asia Minor, 126.—Rev. E. C. Bolles on shells, etc., found in Humphrey's Pond, 127; J. Robinson on Wild Flowers and Ferns, 128; Remarks of Rev. S. H. Taft, Gen. J. Newhall and N. A. Horton, 128.	
Field Meeting at Chebacco Pond, Tuesday, August 12,	129
Notices of the Excursion, 131; Geo. D. Phippen on early reminiscences, 133; A. W. Dodge, on the Rev. Dr. Cutler, 134.—Remarks of Prof. A. Gray, on the Peculiar Properties of the Leaves of the Pitcher Plant, 138; List of Plants collected during the Rambles by S. B. Buttrick, 139.—Remarks of Prof. G. L. Goodale and J. J. H. Gregory, 140; of F. W. Putnam on the Fishes in the Pond, 141.	
Field Meeting at Danvers Centre, Friday, September 5,	143
Notice of the Excursions, 143.—F. W. Putnam on the Meeting of the A. A. A. S., at Portland, 151.—On the Generic Affinities of the New England Chitons, by P. P. Carpenter, 152.—Remarks of J. Robinson on Ferns, 155; of Rev. E. C. Bolles, 156.—Remarks by Rev. C. B. Rice, 158; of D. Stiles on the Old Townsend Bishop House, 158; of Dr. J. Spofford, 159; of A. Mudge, 159; of W. P. Upham on the Pariss House, 160; of Geo. Tapley on the Hon. Samuel Holton, 160.—List of Plants collected during the Excursion, by S. B. Buttrick, 161.	
Special Meeting, Thursday, September 11,	162
Memorial Address upon the late Henry C. Perkins, M.D., by Rev. S. J. Spalding, D.D., 162.	
Regular Meeting, Monday, October 6,	163
Regular Meeting, Monday, October 20,	163
Regular Meeting, Monday, November 3,	165
C. J. Maynard on the Mechanism of the Flight of Birds, 168.—On the Bird-Fauna of the Salt Lake Valley and the Adjacent Portions of the Wahsatch Mountains, by Robert Ridgway, 168.—On the Birds of Colorado, by Robert Ridgway, 174.	
Regular Meeting, Monday, November 17,	196
On some New Forms of American Birds, by Robert Ridgway and S. F. Baird, 197.	
Regular Meeting, Monday December 1,	202
Notice of the death of Benjamin F. Browne, 203.	
Regular Meeting, Monday, December 15,	203
Notice of the Death of Prof. Agassiz, 204.—Resolutions, 204.—Remarks of A. S. Packard, 205; of F. W. Putnam, 205.	
Special Meeting, Tuesday, December 16,	208
Remarks of Hon. James Kimball, 208; of A. C. Goodell, Jr., 210; of J. Wingate Thornton, 211.	

# BULLETIN

OF THE

## ESSEX INSTITUTE.

---

VOL. 5.      SALEM, MASS., JAN. AND FEB., 1873.      No. 1.

---

One Dollar a Year in Advance. 10 Cents a Single Copy.

---

REGULAR MEETING, MONDAY, JANUARY 6, 1873.

THE PRESIDENT in the chair. Records of preceding meeting read.

DR. A. S. PACKARD presented a verbal communication, of which the following is an abstract, on

THE GLACIAL PHENOMENA OF NORTHEASTERN AMERICA  
COMPARED WITH THOSE OF EUROPE.

DR. PACKARD said that during a hurried tour through the Alps, he had specially observed the glacial phenomena of the regions which had been glaciated in past times. The impression made on his mind was that the evidences of the former presence of glaciers in valleys, at the heads of which were the ends of glaciers now existing, were scarcely more distinct than in the valleys of the White Mountains, the Adirondacks and even the coast of Maine and Massachusetts, in all of which localities he had in years past studied these phenomena. As he approached the Alps from the valley leading up to Kempten from Munich, he had noticed that in the region of Kempten

the valley was flanked by rounded moraines, clothed with pines and firs, and no better marked than those in the valley of the Saco about Conway. Their presence was revealed by the clearing away of the forests in the same manner as in the White Mountains and the Adirondacks. In one important feature, the marks were less apparent, as one does not see in the Alps the broad trains of boulders so common in the White Mountains, as they have been cleared away after centuries of occupation of the country. It was more difficult to detect striated and rounded rocks in the Alpine valleys than he had imagined from the accounts of Alpine geologists.

He should, however, make an exception to the valley of Hasli, in which the striæ on the sides of the mountains are wonderfully distinct.

In Norway also the grooves and striæ may be often seen in protected places, but are scarcely more apparent than about Salem, for example.

He also compared the ice marks and moraines in Wales with those of this country, and alluded to the identical appearance of the marine glacial beds of Sweden with those of northern New England. He thought that the student of this subject need not go outside of the limits of New England for excellent examples of the work done by ancient glaciers.

A general conversation followed on the subjects suggested by the remarks of Dr. Packard, participated in by Messrs. F. W. Putnam, A. C. Goodell, Jr., E. S. Atwood, A. H. Johnson and others; also on the inscriptions on stones, which have been supposed to be Runic, but are probably Indian; and on the visit of the Northmen, which seems to be historically believed, but of which no relics have been found.



The President remarked that, twenty-five years ago this day, a meeting of the Essex County Natural History Society was held to act upon the report of a committee, appointed at a previous meeting, to confer with a similar committee of the Essex Historical Society, on the subject of a union of the two societies. The resolutions reported by the committee and adopted with some slight modifications were the basis of our present organization.

A committee was appointed to petition the Legislature for an act of incorporation, a committee for the same purpose having also been appointed by the Historical Society. The act was duly passed and was accepted by the two societies at meetings held March 1, 1848, and the organization of the Institute immediately followed thereon.

The President presented a brief statement of the organization and condition of the two societies at the time of the union, and made some remarks on the causes that led to this result, and alluded to the various conversations and discussions among the members before any definite action was taken by either society. He suggested the propriety of adopting some measures to commemorate this event.

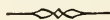
After a discussion on this subject, a committee consisting of Messrs. A. C. Goodell, A. H. Johnson and E. S. Atwood was appointed to consider and report at an adjournment of this meeting, a plan to commemorate this epoch in the history of the Society.

The SECRETARY announced the following correspondence :—

From Samuel L. Boardman, Augusta, Maine, Dec. 20; A. J. Cook, Lansing, Michigan, Nov. 15; John T. Moulton, Lynn, Dec. 26; Edward Russell, Boston, Jan. 4; J. Lawrence Smith, Louisville, Kentucky, Dec. 23; New York, Genealogical and Biographical Society, Oct 31; New York Lyceum of Natural History, Dec. 23.

E. A. Goldthwaite of Salem was elected a resident member.

*Voted*, To adjourn to Saturday evening next at 8 o'clock.



#### ADJOURNED MEETING, SATURDAY, JANUARY 11, 1873.

The PRESIDENT in the chair.

Mr. A. C. Goodell reported, for the committee, several plans that had been suggested —after a discussion on motion of Dr. A. H. Johnson.

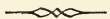
*Voted*, That the twenty-fifth anniversary be celebrated by a banquet on Wednesday, the fifth of March, ensuing—at which members can procure tickets for themselves and their friends.

On motion of Mr. D. B. Hagar,

*Voted*, That a committee be appointed with full powers to make all arrangements.

The committee consists of Henry Wheatland, A. C. Goodell, Jr., William Sutton, F. W. Putnam, D. B. Hagar, A. H. Johnson, John Robinson, James O. Safford, E. C. Bolles, C. Cooke, E. S. Atwood, William Neilson, George D. Phippen, Joshua Coit, and G. M. Whipple.

Adjourned.



#### REGULAR MEETING, MONDAY, JANUARY 20, 1873.

THE PRESIDENT in the chair. Records of preceding meeting read.

The SECRETARY announced the following correspondence:—

From Jacob Batchelder, Lynn, Jan. 9; E. M. Coffin, Orange, Jan. 8; A. W. Greenleaf, Newburyport, Jan. 7, 9; J. C. Holmes, Detroit, Mich., Jan. 9; M. L.



Huntley, South Lancaster, Mass., Dec. 24; J. Munsell, Albany, N. Y., Jan. 16; C. Fessenden Nichols, Boston, Dec. 27; A. T. Perkins, Boston, Jan. 16; John C. Ropes, Boston, Jan. 11; J. Henry Stickney, Baltimore, Md., Jan. 18; Cyrus Woodman, Cambridge, Jan. 14; Belfast Naturalists' Field Club, Nov. 1; Boston Society of Natural History, Jan. 1; Brooklyn Mercantile Library, Jan.; Bowdoin College, Jan. 13; Hague, Entomological Society of the Netherlands, Oct. 25; Hamburg, Naturwissenschaftlicher Verein, Dec. 10; Lisbon, Academie Royale des Sciences, Sept. 27; Maine Historical Society, Jan. 13; Maryland Historical Society, Jan. 13; New Haven, Yale College, Jan. 9; New York State Library, Jan. 13; Pennsylvania Historical Society, Jan. 16; U. S. Bureau of Education, Jan. 17.

## The LIBRARIAN reported the following additions :—

### *By Donation.*

CHAMBERLAIN, JAMES A. Manual for the General Court, 1858, 1 vol. 16mo. The New York State Guide, 1 vol. 16mo. Military Commission to Europe 1855, 1856, 1 vol. 4to. Proposition concerning Protection and Free Trade, 1 vol. 12mo. The Cultivator, 1845, 1 vol. 8vo. Guide through the Middle, Northern and Eastern States, 1847, 1 vol. 16mo. Patent Office Reports, 1854, 1856, 1857, 1858, 4 vols. 8vo. Report on Agriculture, 1862, 1863, 2 vols. 8vo. Salem Directory, 1851, 1 vol. 12mo. Miscellaneous pamphlets, 60.

COLE, Mrs. N. D. Salem Gazette for 1872, 33 Nos.

EDITORS OF "THE NATION," New York. The Benson Family of Newport, R. I. 1 vol. 8vo.

FOOTE, C. Files of several County Papers for 1872. 209 Nos.

FULLER, MISS. Memoirs of Denmark, 1 vol. 12mo. London, 1700. Treason Unmask'd: or the Queen's Title, 1 vol. 12mo. London, 1713.

GARRISON, W. P., of New York. Constitution and By-laws of the New England Society of Orange, N. J., Dec. 1872. 16mo pamphlet.

HAWAIIAN BOARD OF EDUCATION. \*Ka Huinahelu Hov; via hoi ka Arimatika Kulanui, 1 vol. 8vo. Ka Buke Ao Heluhelu, 1 vol. 8vo. Ka Hoailona Helu, 1 vol.

HOLDEN, N. J. The Commonwealth, 1872. 38 Nos.

NATIONAL ASSOCIATION OF WOOL MANUFACTURES, Bulletin. Oct. Dec., 1872.

NEW ENGLAND TRACT AND MISSIONARY SOCIETY OF SEVENTH-DAY ADVENTISTS AT SOUTH LANCASTER, MASS. United States in Prophecy, 1 vol. 16mo. Battle Creek, Mich., 1872.

NICHOLS, C. F. Webster's Dictionary, 1 vol. 4to. French's Poems, 1 vol. 8vo. Signs of the Times, 1 vol. 4to. Journal of Education, 1 vol. 4to. Chamber's Edinburgh Journal, 1838, 1 vol. 4to. Lessons on the Gospel of St. John. 1 vol. 12mo. Outlines of Phrenology, 1 vol. 12mo. Several pieces of Music.

ROPES, W. L., of Andover, Mass. Catalogue of the Andover Theological Seminary, 1872-3, 8vo pamph.

RUSSELL, EDWARD, of Boston. The Mercantile Agency Reference Book for July, 1871. 1 vol. 4to.

STONE, MISS MARY H. "The Nation." 222 Nos.

U. S. PATENT OFFICE, Washington, D. C. Official Gazette for Dec. 17, 24, 31, 1872.

### *By Exchange.*

BELFAST NATURALISTS' FIELD CLUB. Sixth, Eighth and Ninth Annual Reports, 1868-9, 1870-1, 1871-2. 3 pamphlets, 8vo.

BIBLIOTHEQUE UNIVERSELLE ET REVUE SUISSE. Archives des Sciences Physiques et Naturelles, Sept., Oct., Nov., 1872. 3 pamphlets, 8vo.

CANADIAN INSTITUTE OF TORONTO, CANADA. *Journal of Science, Literature and History*, Dec., 1872. 8vo pamph.

HARVARD COLLEGE LIBRARY. *Annual Reports of the President and Treasurer of Harvard College for 1871-2*. 8vo pamph.

IOWA STATE HISTORICAL SOCIETY. *The Annals of Iowa*, Oct., 1872. 8vo pamph.

KÖNIGLICHE PHYSIKALISCH-ÖKONOMISCHE GESELLSCHAFT IN KÖNIGSBERG, PRUSSIA. *Schriften*, 1871-2. 3 pamphlets, 4to.

NATURHISTORISCHEN GESELLSCHAFT ZU NÜRNBERG. *Abhandlungen*, v Bd., 1872. 8vo pamph.

NATURWISSENSCHAFTLICHEN VEREIN IN HAMBURG. *Abhandlungen aus dem Gebiete der Naturwissenschaften*. Bd. v, II Abth. Mit 9 Tafeln. 4to pamph. *Uebersicht der Aemter-Vertheilung und Wissenschaftlichen Thätigkeit*, 1869, 1870. 2 pamphlets, 8vo.

NEW ENGLAND HISTORIC-GENEALOGICAL SOCIETY. *Historical and Genealogical Register and Antiquarian Journal for Jan.*, 1873. 8vo pamph.

SOCIÉTÉ ENTOMOLOGIQUE DE BELGIQUE, IN BRUXELLES. *Annales*, Tome xiv, 1870-71, 8vo pamph.

STATE HISTORICAL SOCIETY OF WISCONSIN. *Transactions of the Wisconsin Academy of Sciences, Arts and Letters*, 1870-2, 8vo pamph.

PUBLISHERS. *American Journal of Science*. *American Naturalist*. *Bossange's Monthly*. *Christian World*. *Dexter Smith's Paper*. *Gardener's Monthly*. *Gloucester Telegraph*. *Hardwicke's Science Gossip*. *Haverhill Gazette*. *Historical Magazine*. *Ipswich Chronicle*. *Lynn Reporter*. *Lynn Transcript*. *Medical and Surgical Reporter*. *Merrimac Valley Visitor*. *Nation*. *Nature*. *Peabody Press*. *Sailors' Magazine and Seamen's Friend*. *Salem Observer*. *Western Lancet*.

#### DR. EMERSON'S EXCURSION TO PHILADELPHIA FIFTY YEARS AGO.

The time at the meeting was chiefly occupied by Rev. E. S. Atwood, who read copious extracts from a journal of the late Rev. Brown Emerson, in which was given an account of an excursion which he made to New York and Philadelphia, starting on April 23, 1822, and arriving home again after an absence of four weeks and five days.

The journal contains many interesting incidents of the trip, and quite a full and equally interesting account of the friends and places visited on the way. He left Salem, April 23, in a stage. On Tuesday evening, in Boston, called on Rev. Mr. Wisner and negotiated an exchange. "Called also on J. Peabody and spent most of the evening. He had noticed the publication of my journey in the *Salem Gazette*, which was some mortification to me." On Tuesday night he put up at Earle's Hotel, on Hanover street, and was awakened on Wednesday morning at

two o'clock, at which hour he started in the stage on his way to Northampton, where he arrived at night, and the next morning took great pleasure in visiting the house where President Edwards lived when he was settled in the town.

He started from Northampton at eleven o'clock on Thursday, in a stage, arriving at Hartford at eight in the evening. Springfield, he described as "a pleasant town, having the appearance of considerable business and wealth." There seemed to be sudden changes in the weather fifty years ago as well as now; for while the ride of Wednesday was a very cold one, on Thursday it was a hot summer day, the thermometer indicating 88 degrees, and the cattle panting in the shade. The advent of a minister from a distance seemed to be regarded as quite a distinction on the way, and at Bennett's hotel, on Friday morning, at breakfast, the landlord conducted him to the head of the table, and, calling the attention of the company, requested him to ask a blessing. Dr. Emerson adds: "This was a gratification to me, because it was apparent the company were not accustomed to this religious duty at the breakfast table, *and I was saved from the painful office of calling their attention to it myself*; and because it evinced in the landlord a regard to religious duty and a respect for the ministerial character."

He remained at Hartford, visiting among other things, the Deaf and Dumb Asylum, until the following Tuesday, when, at nine o'clock, A. M., he started for New Haven, where he arrived at four in the afternoon. He remained here until the following Friday, seeing many ministers, visiting Yale college, etc. On Friday, went on board the steamboat which started for New York at a quarter before seven o'clock, P. M. He describes the steamer as a "floating ark, one hundred and forty-six feet long and

forty-two broad, and the supper table in the principal cabin as being laid with as much taste and elegance as we find in our best hotels, and furnished with as great and rich a variety." So the palatial steamboat living is not so modern an idea as some of us seem to think. The drawing for berths, by lot, is described, but the following shows that the drawing was not altogether impartial:—

"When my name was called, Capt. B. smiling, said, 'There has been great inquiry about Mr. Emerson, and many of my New Haven friends desired me to give him a good berth.' The captain then drew for me a ticket, which gave me one of the best berths in the boat. I mention this as a proof that, though the berths are assigned by lot, 'the whole disposing thereof' is not directly 'of the Lord,' and as an expression of kind attention to a stranger on the part of some of the citizens of New Haven."

The only other incident of note connected with the trip to New York, was the open announcement at an early hour, which all could hear in their berths, "No fear, we have passed the gate of Hell,"—alluding to the passage at "Hurlgate."

The boat arrived at New York at three o'clock on Saturday morning, and he remained there, seeing the sights, and hearing some of the eminent and other preachers, until the following Friday, when he sailed for New Brunswick, N. J., thirty-five miles distant. There he remained until the succeeding Tuesday, May 14, when he started, by a very slow and dilapidated stage, for Trenton, where he was to take the boat for Philadelphia. The team arrived too late, but it pressed on to Bristol, ten miles below, and there caught the boat, which, at eight o'clock, began to move down the Delaware, the city of Philadelphia coming in sight at half-past ten.

During his stay in Philadelphia, he visited the different



localities of interest, and attended some of the sessions of the Presbyterian Assembly. One of the sermons to which he listened was that of Rev. Mr. Howe, of New Brunswick, whom he described as a "noisy, boisterous, declamatory, and dashing preacher."

Dr. Emerson remained in Philadelphia until twelve o'clock on Wednesday, May 22, when he took the steamboat on his way home, by way of Trenton, New Brunswick, New York, New Haven, and New London. He arrived at Boston on Saturday night, May 26th; and, hearing of the severe sickness of his wife, and, finding that an exchange which he had previously arranged, could be provided for, he took a conveyance home early on Sunday morning,—his journal concluding with a warm expression of the abundant reason he had for gratitude to God that his trip had been made with so much pleasure and safety.

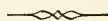
In the back part of the book in which this journal was kept, Dr. Emerson gives a minute account of his expenses, and we reproduce the list, as having interest for comparison with present prices:—

Salem to Boston, \$1.00; lodging at Earle's hotel, 25 cents; stage, Boston to Framingham, \$1.50; breakfast, 50 cents; Framingham to Brookfield, \$2.50; Brookfield to Belchertown, \$1.31; Belchertown to Northampton, \$1.00; supper, breakfast and lodging at Northampton, 75 cents; cake at Suffield, Conn., 6 cents; stage from Northampton to Hartford, \$3.00; supper, breakfast and lodging at Bennett's hotel, \$1.00; stage from Weathersfield to New Haven, \$2.25; dinner at New Haven, 50 cents; shaving in New Haven, twice, 12½ cents; conveyance to steamboat, 25 cents; steamboat fare from New Haven to New York, \$5.00; cleaning boots in steamboat, 12½ cents; conveyance of baggage from steamboat 25 cents; break-

fast at Bunker's hotel, N. Y., 50 cents; carrying baggage 25 cents; boat and stage fare from N. Y. to Princeton, \$2.00; dinner in boat, 75 cents; supper, lodging, and carrying baggage at P., 68 cents; stage, extra, from Princeton to Bristol, Pa., \$2.00; steamboat from Bristol to Philadelphia, 50 cents; breakfast on boat, 50 cents; carrying baggage, 25 cents; shaving at N. H., 12 cents; ferry, N. Y. to Brooklyn, 8 cents; four meals and two lodgings at Mrs. Anstris', \$2.00; museum, 25 cents; hospital, 12½ cents; porter, 18 cents; boat and stage from Philadelphia to N. Y., \$2.50; lodging at N. Brunswick, 25 cents; dinner and breakfast in boat, \$1.00; porter 12½ cents; stage from New London to Boston, \$7.00; breakfast and dinner, \$1.00; stage from Boston to Salem, \$1.00. Total expenses, \$52.42.

In May, 1837, Dr. Emerson made substantially the same trip with his brother Reuben, and he noted the principal expenses as follows:

Salem to Boston, \$1.00; Boston to Providence, \$2.00; P. to N. Y. ("found") \$5.00; N. Y. to Philadelphia, \$3.00; total, \$11.00.



#### REGULAR MEETING, MONDAY, FEBRUARY 3, 1873.

Meeting this evening at 7.30 o'clock. The PRESIDENT in the chair. Records of preceding meeting read.

The SECRETARY announced the following correspondence:—

From William Gray Brooks, Boston, Jan. 28; Caroline H. Dall, Boston, Jan. 9; J. H. Emerton, Boston, Jan. 31; Samuel Henshaw, Boston, Jan. 20; Edward P. Hurd, Newburyport, Jan. 26; Wm. Parsons Lunt, Boston, Jan. 28; J. Munsell, Albany, N. Y., Jan. 21; J. L. Sibley, Cambridge, Jan. 22; D. J. Tapley, New York, Jan. 27; W. O. Townsend, New York, Jan. 20; Charles A. Walker, Chelsea, Feb. 3; Boston, Public Library, Jan. 27; Calcutta, Indian Museum, June 4; Harvard Col-

lege Corporation, Jan. 24; Marburg, Gesellschaft zur Beförderung der Gesamten Naturwissenschaften, Oct. 18; Smithsonian Institution, Jan. 17; Yale College, Corporation, Jan. 31; Zurich, die Naturforschende Gesellschaft, July 1.

The LIBRARIAN announced the following additions : —

*By Donation.*

ATWOOD, E. S. Miscellaneous pamphlets, 85.

BROOKS, Mrs. H. M. Woman's Journal. 1872. 21 numbers.

CHAMBERLAIN, JAMES A., Boston. Board of Trade, 1856, 1867. 14 vols. 8vo. Instruction for Field Artillery. 1 vol. 8vo. Boston Directories for 1861, 1863, 1864. 3 vols. 8vo. Patent Office Reports for 1849-1850, 1850, 1850-1851, 1856. 4 vols. 8vo. New England Business Directory, 1860. 1 vol. 8vo. Boston Almanacs for 1853, 1855. 2 vols. 16mo. The Tax Payer's Manual. 1 vol. 8vo. Miscellaneous pamphlets, 6.

NATURALIST AGENCY. The Great Industries of the United States. 1 vol. 8vo. 1872.

U. S. PATENT OFFICE, WASHINGTON, D. C. Official Gazette. Jan. 7, 1873.

*By Exchange.*

ENTOMOLOGISCHER VEREIN IN STETTIN. Entomologische Zeitung. Herausgegeben von dem Entomologischen Vereine zu Stettin, xxxiii, Jahrg. 8vo pamph.

GESELLSCHAFT ZUR BEFÖRDERUNG DER GESAMTEN NATURWISSENSCHAFTEN IN MARBURG. Schriften, Bd, ix, x. Sitzungsberichte, 1869, 1871.

HISTORICAL SOCIETY OF PENNSYLVANIA. Memoirs of. Vol. x. 1 vol. 8vo. Catalogue of the Paintings, etc., belonging to the Historical Society of Penn. 8vo.

NATURFORSCHENDEN GESELLSCHAFT IN ZÜRICH. Vierteljahrsschrift, Jahrg. xvi. 1871. 8vo pamph. Neuchatel, 1871.

ROYAL SOCIETY OF LONDON. Proceedings of. Vol. xx. Nos. 130-137. 8vo.

SOCIÉTÉ D'ACCLIMATION OF PARIS. Bulletin Mensuel Tome ix, Aout, Sept. Oct., 1872. 3 pamphlets. 8vo.

SOCIÉTÉ DES SCIENCES NATURELLES IN NEUCHATEL. Bulletin, Tome ix. 2me. Cahier. 1872. 8vo pamphlet.

VEREINS FÜR ERDKUNDE ZU DRESDEN. Jahresbericht viii und ix. 1872. 8vo.

PUBLISHERS. Gloucester Telegraph. Haverhill Gazette. Ipswich Chronicle. Lawrence American. Lynn Reporter. Lynn Transcript. Medical and Surgical Reporter. Nation. Nature. Peabody Press. Quaritch's Catalogue. Salem Observer.

The SUPERINTENDENT OF THE MUSEUM announced the following donations to his department :—

STICKNEY, M. A. Miscellaneous manuscripts.

WATERS, E. S., of Chicago, Ill. Water Vase, bought in London, Aug., 1870 stored in the basement of 108 Cass St., Chicago, and dug from its ashes, Nov., 1871.

William Fobes Gavett of Salem, was elected a resident member.

Mr. JAMES H. EMERTON made an interesting statement of the results of his observations on the

WORMS OF THE GENUS NAIS.

He mentioned that, Oct. 21, he took from the large pond near Legg's hill a quantity of bladderwort and other floating plants, among which, with the animals usually found in the pond, were large numbers of worms of the genus *Nais*, each wearing a tubular case covered with seeds and water plants and in part with the eggs of *Daphnia*. On removing the cases, a large proportion of the worms showed the beginning of a division into two and sometimes the struggles of the worm while its case was being removed were enough to complete the separation.

The first appearance of division was a larger interval than usual between two pairs of setæ near the middle of the body, around which a slight wrinkle marked the line of future separation.

Just behind this crease, on the under side of the body, next appeared rudiments of four pairs of bunches of hooked setæ, marking the four segments next behind the mouth of a new worm. At the same time in front of the line of division appeared a great number of new segments crowded together, which were to form the posterior end of the forward worm, and just behind them grew out a pair of long appendages, like those at the end of the old worm. The line of division became more and more distinct, until the appearance was presented of one worm, with another just like it fastened to its tail. At length the division took place, and at the divided part one worm developed a new mouth, and the other a new set of respiratory appendages.

In a few days another worm, *Chaetogaster*, appeared in



the water, which divided up in a more complicated way. While one division was going on, and before the parts separated, each half again divided itself, and each of these quarters again divided, and so on, until a chain was formed of a dozen or more unfinished worms, all using the mouth of the foremost one, and having their digestion and circulation in common.

The PRESIDENT announced the death of an associate member, Henry C. Perkins, M. D., of Newburyport, who died suddenly at his home on Saturday. In the morning he was taken ill. No special danger was apprehended during the day, though some anxiety was felt; about seven o'clock in the evening, while physicians were in the house and friends were near him, he suddenly closed his eyes upon this world and expired.

Dr. Perkins was the son of Thomas and Elizabeth Perkins, and was born in Newburyport, Nov. 13, 1804. He fitted for college at the Newburyport academy and entered the Freshman class at Harvard in 1820, graduating in 1824. He immediately commenced the study of medicine with Dr. Richard S. Spofford, of Newburyport. In October, 1825, he entered his name as a student with Dr. J. C. Warren, of Boston, and continued with him until he received the medical degree in August, 1827. On the 3rd of September, 1827, he commenced practice in Newburyport, having had a professional life in that place of a little more than forty-five years.

He was well known as a zealous and enthusiastic student in several branches of science. His investigations went out in a great variety of ways. He undertook the grinding and polishing of the lenses for a telescope. He experimented on the qualities of chloroform and ether as anæsthetics. Some fossil bones, brought to this city in a

vessel of the late Capt. Cushing and given to him, led him into the study of comparative anatomy. He calculated the orbits of comets; he engraved; made for himself a microscope; was the first in this country to follow Daguerre in his remarkable discovery; was a student of meteorology; and after he was sixty-five years old learned the German language, that he might translate a work of Dr. Ernst Hallier, entitled, "Parasitical Investigations upon the Vegetable Organisms found in Measles, Typhus Abdominalis, Small Pox, Kine Pock, Sheep Pock, Cholera, etc." To this translation the doctor added an appendix, giving his own observations continued for months, confirming those of Professor Hallier. He was scholarly in all his habits, and kept up a familiarity with the classics, but the book of nature was his special delight.

Dr. Perkins was highly esteemed for his scientific and other attainments, and was frequently called to offices of honor and trust. He was for two successive terms President of the Massachusetts Medical Society; a member of the American Academy of Arts and Sciences; President of the Common Council of Newburyport during the years 1858-59, and a representative of that city in the state legislature several times; and during many years previous to his decease a trustee of the Putnam Free School, and trustee of the Institute for Savings for Newburyport and vicinity. He was appointed by Mr. George Peabody, in 1867, one of the trustees for the fund for the Promotion of Science and Useful Knowledge in the County of Essex, since incorporated under the title of "The Trustees of the Peabody Academy of Science," and having its museum and collections in this city.

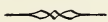
After remarks from Rev. E. C. Bolles, Dr. A. H. Johnson and Messrs. F. W. Putnam and A. C. Goodell,

Jr., on the character of our deceased associate as a scholar, a physician and a citizen, the following resolutions were unanimously adopted :—

*Resolved*, That the Essex Institute hereby expresses its deep sense of the value of the labors of its late resident member, Dr. HENRY C. PERKINS, in various branches of science; its appreciation of the purity of his life and character; and its sympathy in their loss with the members of his family.

*Resolved*, That the Secretary be instructed to put these resolutions upon record, and to furnish a copy of the same to the family of the deceased.

A resolve was also adopted, directing the Secretary to invite some friend or friends in Newburyport to prepare a memoir of Dr. Perkins for publication in the "Historical Collections of the Essex Institute."



#### REGULAR MEETING, MONDAY, FEBRUARY 17, 1873.

Meeting this evening at 7.30 o'clock. The PRESIDENT in the chair. Records of preceding meeting read.

The SECRETARY announced the following correspondence :—

From B. F. Browne, Salem, Feb. 5; Jacob Batchelder, Lynn, Feb. 11; Wm. G. Brooks, Boston, Feb. 15; C. H. Dall, Boston, Feb. 5; Henry B. Dawson, Morrisania, N. Y., Feb. 4; Joseph H. Frothingham, New York, Feb. 14; Alfred Osgood, Newburyport, Feb. 11; W. Stevens Perry, Geneva, N. Y., Feb. 7; Edmund F. Slafter, Boston, Feb. 10; Bruxelles, Société Entomologique de Belgique, Jan. 24; Iowa State Historical Society, Feb. 5; New York State Library, Feb. 1.

The LIBRARIAN reported the following additions :—

#### *By Donation.*

BUTLER, B. F., of U. S. H. R. Report of the Department of Agriculture for Jan., 1873. 8vo pamph. Alabama Claims, by donor. 8vo pamph.

CUTTER, ABRAM E., of Charlestown. Annual Report of the School Committee of Charlestown for 1872. 8vo pamph.

HOLDEN, N. J. The Commonwealth, 21 numbers. The Literary World, 12 numbers. The National Standard, 7 numbers. Orders of the Day, Senate, Jan. 19, June 21, 1869.

LEE, JOHN C. Commercial Bulletin, Jan. 4, 11, 18, 25, Feb. 1, 1873.

LEVETTE, G. M., of Indianapolis, Ind. Indiana Agricultural Reports for 1872. 1 volume. 8vo. Report of the Superintendent of Public Instruction of Indiana for 1872. 1 vol. 8vo. Geological Survey of Indiana for 1872, by E. T. Cox. 1 vol. 8vo. Maps for the Geological Survey.

LINCOLN, SOLOMON. Industry of Mass. 1865. 1 vol. 8vo. Adjutant General's Report. 1865. 1 vol. 8vo. Report of Board of Education of Mass. 1871. 1 vol. 8vo. Board of Agriculture of Mass., by C. L. Flint. 1868-9. 1 vol. 8vo. Annual Report of the Board of State Charities. 1865, 1868. 2 vols. 8vo. Registration Reports of Mass. 1864, 1866. 2 vols. 8vo. Eighth Census of the United States. 1860. 1 vol. 8vo. Insurance Commissioner's Reports for 1865, 1867. 2 vols. 8vo. Student's Life, by S. Osgood. 1 vol. 12mo. Cicero's Brutus, by C. Beck. 1 vol. 12mo. Army Regulations. 1861. 1 vol. 12mo. Whitaker's Almanac. 1871-72. The National Almanac. 1863. British Almanac and Companion. 1858. 1 vol. 12mo. Rules and By-laws of Board of Overseers of Harvard College. 1 vol. 12mo. Manual for the General Court. 1864, 1869. 2 vols. 12mo. Statistical Pocket Manual. 1 vol. 16mo. Directory of Cambridge for 1851. 1 vol. 12mo. Boston Almanacs. 1860, 1861. 2 vols. 16mo. Warren's Common School Geography. 1 vol. 4to. Miscellaneous pamphlets, 110.

MASSACHUSETTS HORTICULTURAL SOCIETY. Schedule of Prizes for 1873. 8vo.

MESSRS. WHIPPLE AND SMITH. Industry of Massachusetts for 1855. 1 vol.

MOULTON, JOHN T., of Lynn. Anniversary Address in Wales, Oct. 5, 1862, by A. Gardner. 8vo pamphlet.

U. S. DEPARTMENT OF THE INTERIOR. Ninth Census of the U. S. 1870. 1 vol.

U. S. PATENT OFFICE, WASHINGTON, D. C. Official Gazette, Jan. 21. 1873.

### *By Exchange.*

AMERICAN ANTIQUARIAN SOCIETY OF WORCESTER. Proceedings of, at the Annual Meeting, Oct. 21. 1872. 8vo pamphlet.

AMERICAN PHILOSOPHICAL SOCIETY OF PHILA. Proceedings of, July-Dec. 1872. 8vo pamphlet.

BOWDOIN COLLEGE LIBRARY. Catalogue of the Officers and Students of Bowdoin College for 1872. 12mo pamphlet.

NEW ENGLAND HISTORIC-GENEALOGICAL SOCIETY. Address of Hon. M. P. Wilder at the Annual Meeting, Jan. 1, 1873. 8vo pamphlet. Proceedings of the, at the Annual Meeting, Jan. 1, 1873. 8vo pamphlet.

NEW YORK GENEALOGICAL AND BIOGRAPHICAL SOCIETY. Genealogical and Biographical Record for Jan., 1873. 8vo pamphlet.

NEW YORK STATE LIBRARY. Meteorology of New York. 1850-1863. 1 vol. 4to. 1872.

NOVA SCOTIA INSTITUTE OF NATURAL SCIENCE OF HALIFAX. Proceedings and Transactions, Vol. iii, pts. i, ii. 1870-1872. 2 pamphlets. 8vo.

PUBLISHERS. American Journal of Science and Arts. American Naturalist. Gardener's Monthly. Gloucester Telegraph. Haverhill Gazette. Ipswich Chronicle. Lawrence American. Lynn Reporter. Lynn Transcript. Medical and Surgical Reporter. Nation. Nature. Peabody Press. Sailors' Magazine and Seamen's Friend. Salem Observer. Western Lancet.

# BULLETIN

OF THE

## ESSEX INSTITUTE.

---

VOL. 5. SALEM, MASS., FEB. AND MARCH, 1873. No. 2.

---

One Dollar a Year in Advance. 10 Cents a Single Copy.

---

REGULAR MEETING, MONDAY, FEBRUARY 17, 1873.

[*Continued.*]

Mr. STEPHEN M. ALLEN made a communication on the

ANCIENT AND MODERN THEORIES OF LIGHT, HEAT AND COLOR.

Light, heat and color appeal to our senses from the beginning to the end of life. These phenomena, so closely allied, have for generations appeared alike mysterious to youth and age,—to the simple child of nature and the leaders of scientific research. If any persons have satisfied themselves fully as to the true cause of either, they have transmitted no explanatory theory which has stood the test of time.

The discovery and uses of the spectroscope have for the past five years taken the world by storm, and as a natural consequence there have been greater changes in the theories of light and color than for a century past. The physicists of Europe and America, who employ the spectroscope, claim that by its assistance light and color may be employed to discover the primary elements of



luminous bodies, and that by comparing the prismatic effects of sun rays with those of artificial lights, they may identify or discriminate between their causes. This discovery, so confidently announced in 1870, in some respects seemed to confirm the Actien theory which we had the honor to publish some ten years before. The spectroscope would apparently contradict or disprove Sir Isaac Newton's real theory of light; but a careful investigation convinces one that the theory based on the spectroscope is tenable only for our atmosphere, revelations claimed for it outside this, failing in their proof; also, that Newton's theory of the origin of light and its natural properties has been misunderstood and misquoted.

Actien\* is a primary principle, the most subtle of all known elements, emanating from the sun in straight lines towards its planets, its flowing rays creating, in their passage to the earth, electricity, magnetism, light, heat, color, and many other properties by their friction upon and combustion with the atmosphere, ultimately reducing all elements to their utmost density, and producing a constant crystallization and consolidation of matter. This creative principle is supposed to pass from the sun, either in all directions through the solar system, or in concentrated rays exclusively upon the planets of its creation, not necessarily bearing light or heat as it passes through space, those elements being generated within the circle of the atmosphere of the planet. When this fluid reaches and pervades the atmosphere, the contact, or friction with it, instantly causes a combustion, producing the magnetic, electric and calorific changes, involving, as a sequence, light, heat and color, the aurora borealis, zodiacal, cometary and phosphorescent lights, as well as the "pole of

---

\* Actien, the primary of Actin, or rays.

cold," and many other phenomena. Heat seems of late nearly divorced from light and color, though this is only an apparent separation. The Actien theory materially qualifies the estimate of the nature and origin of all these elements. Late astronomical publications still tell of the heat of the body of the sun, and the hourly consumption of combustible material on its surface necessary for our supply of light and heat. But the present advanced undulatory theory of light promises to qualify such a principle very much.

The fact of increasing darkness and coldness, experienced by one in rising from the mean surface of the earth, either by climbing mountains or balloon ascension, magnifies the doubt that heat is emitted from the sun in the form received by us; and the result of investigation plausibly shows that we may yet account for the origin of the caloric that we use, in a much more satisfactory and perhaps economical manner.

The advocates of the spectroscopic theory base their belief principally on the undulatory theory of light, which they claim Sir Isaac Newton denied, as well as upon the theory that light is composed of colors, which he did, emphatically, deny; and as the correctness of the spectroscopic theory in a measure depends on this misconception of the real constituents of white light, it seems properly a subject for investigation. Newton's theory of white light, as generally understood, is an emission, or corpuscular theory, and that its rays are a compound of seven different colors, made up of corpuscles; thus contradicting the theory of undulations. But from careful investigations of his original work, which these assumptions render necessary, it will be found that his idea was essentially different from that which has usually been attributed to him, during the past fifty years. It not only

disagrees with the spectroscopic theory concerning the taking of prismatic colors as tests of elementary essence, but also qualifies the emission theory, and the theory of color which this is said to represent. It clearly appears that Newton understood and appreciated the undulatory theory as a *transmitting*, if not a *creating* power. Neither he nor his predecessors declared light composed of colors, but called rays of light *color makers*, through prismatic refraction and reflection; colors never appearing until rays were thrown through and were refracted by prisms or lenses, thereby creating the color, according to the angle of refraction, separating the rays unequally and admitting plates of atmosphere between. Various extracts from his well-known work on "Optics" distinctly prove that "emission" and "corpuscle" are not used in the sense generally attributed to him, and it does not appear that he contradicted or denied the undulatory theory as a *transmitting* power. He often referred to the condition of the atmosphere or ether of space, as *trembling*, *waving*, etc., so that the rays are transmitted, as sounds are, by waves or undulations; and further, implied that colors may not be created, by any original principle of sun rays other than their mere flexibility or refrangibility. This need not be connected with color as an original principle, though the atmospheric plates, falling between the deflected rays may create color by irregular over and under lappings of shaded lines. It cannot be denied that Newton, though understanding the present undulatory theory, did not credit it with being the *origin*, but only the *vehicle* of light.

Many, since the day of Newton, have worked assiduously in the field of optics and color; prominent among these is Goethe, whose elaborate work was not fully appreciated. His mistakes in quoting Newton come from the inadver-



tent assumption that color pervades the sun rays *before* the prism, instead of *after* it; the fact being that colors never appear in the primary rays until after having passed through a deflecting lens, which creates the colors beyond it. Hence we judge that an *emanating* theory of light, and a *corpuscular* theory of colors are nearer to Newton's real meaning, than the common interpretation. As his statements show the undulations to be *transmitting* rather than creating powers, he appreciated the distinction between crossing and travelling with the ether waves. The separation, or dispersion of rays by a prism, creates in the atmosphere, according to the angle from whence the ray is thrown, a body to the ray, not before possessed.

Any resultant color is a legitimate consequence of the introduction of a plate of the atmosphere with its molecular composition, between, or overlying, the ray, proving as tangible a result, perhaps, as mixing colored pigments with a white base. We may fairly infer that light has not the same consistency in the space between our atmosphere and the sun, as within the atmosphere itself.

Rays of light probably do not meet exactly the same resistance, at any two given points, in passage to our atmosphere. This we may safely assert, though the atmosphere itself is but imperfectly known to us, even at ten miles distance from the earth's surface. Although the principle of light emanates from the sun, light itself is only a small resultant element, as color may be a resultant of light, not necessarily representing a constituent principle of light itself.

Undulations over or through which rays pass, may be simply confined to the atmosphere near the earth's surface, though assumed to extend much farther into space. The primary principle or power from the sun, would naturally be composed of something more subtle than

any single element known to us. Why may not this be the parent of all subordinate elements, as claimed by the Actien theory? This theory does not fix the density or composition of the sun, nor call for the emission of light or caloric, which the old theories demanded; nor is it inconsistent with the great ether-ocean of space (if such a principle exists) through which it may pass, under the same laws which exist for the transmission of magnetic and electric fluids over wires, either by continuous flashes from point to point, or by the displacement of forces, through and over waves of undulation?

This fluid, repellent, yet constructive, adverse to the sun's gravitation, measures precisely the distance and orbits of its creations, and causes their revolutions either axial or orbital at right angles with the line of propulsion.

A ray of light, passing through a small hole in a curtain to a darkened room, when observed from different points, will present different appearances. From a point horizontal with the line of the ray, it presents one appearance, while at right angles the effect is quite different, and the floating particles of dust which can be detected, either by the naked eye or an instrument, will yield different colors, according to the line of their angles, which is constantly changing. The stratification of the atmosphere, or any transparent substance, will show a similar result, when observed on a line with, or at right angles to, the plane of stratification. And the form of crystallization must ever have a great effect upon the polarization of particles.

The cause of the emanation of Actien from the sun may be accounted for on two principles:—the fluid may be the great ultimate or concentrated principle of the sun itself, the resultant product of all action that has or could take place within its body; if so, that principle could not

remain at rest on the sun itself, or in its atmosphere, whatever the composition of either may be. It must pass off, giving place to other undeveloped, but constantly increasing, forces, behind. It may be inferred that there are such forces, and that each revolution of the sun lifts them on a stage, and that there is a refined and finished part at least that never returns.

This condensed and sublimated principle may be propelled or thrown off from the body of the sun and its atmosphere against its own, or the gravity of the sun by centrifugal forces, with such power as to reach the remotest planets of its own creation, and produce the results there observable. Or this fluid may escape well defined and specific limits of a solar atmosphere by its own volatility or difference in gravity, entering the unresisting ocean of ether beyond, but seeking a lodgment of its own creation through the origin and growth of planetary worlds. It does not matter to us which explanation we accept. It is enough to know that it does flow from that orb, and that it does answer our purpose.

We suppose that Actien passes in straight lines through space, to our own atmosphere, where the work of change and transformation begins. This theory will also admit of a plutonic origin of the germ of a planet, thrown off as a cinder, from the sun, although it would be without form, and void of atmosphere or water, a mere molten mass or shell, hurled into space as a nucleus for further transformation under the influences of Actien. If such was the origin of the nucleus of planetary worlds, they would be somewhat like the moon, which can have but little atmosphere, and consequently no water to fill the immense cavities observable on its surface, unlike our earth whose caverns have been filled with briny sheets of condensed vapor. When the rays of Actien reach the atmosphere,

or any body capable of commencing the process of decomposition, the work begins and increases in measure and action, according to the resistance encountered. Of the elements generated from Actien, we may enumerate electricity, magnetism, light, heat and color, an atmosphere, earth, and all it possesses. Electricity seems to be one of the quickening, disintegrating powers, while magnetism is more concentrative, and belongs to the fixing or consolidating elements. The former takes no rest, but is ever goading all other elements to action and driving them on to their destiny, while the latter seizes the objects of its concentrated labor, holding them fast and crystallizing them in every form that nature demands. Of other existence of these elements, both mechanical and chemical, we have full proof. Mineralogy and chemistry have already enumerated and classified much for us. Geology, vegetable chemistry, and atmospheric changes give us a wide field to work in, and a reliable finger-board is ever pointing us onward. The currents of electricity and magnetism are no doubt governed by fixed laws, which we are getting to understand better and better every day. Their action as a secondary cause (Actien being first) may be considered more important than any other elements we now understand in the creation of worlds, and consolidation of matter. Our planet, like the sun, may also throw off a creating fluid or power, for the formation of planets of its own. The moon appears like a cinder, ragged and cavernous, around which but little atmosphere exists, and consequently with no water or vegetable life. These may be forming—approaching through time to a perfect habitation, peopled and cultivated—a child of earth and one of the gems of infinity.

## REGULAR MEETING, MONDAY, MARCH 3, 1873.

Meeting this evening at 7 30 o'clock. The PRESIDENT in the chair. Records of preceding meeting read.

The SECRETARY announced the following correspondence :—

From Francis H. Appleton, Boston, Feb. 17; Geo. Cogswell, Bradford, Feb. 20; C. H. Dall, Boston, Feb. 19, 21; A. W. Morgan, New York, Feb. 17; Wm. S. Peabody, Boston, Feb. 17; Jonathan Pearson, Schenectady, N. Y., Feb. 26; S. J. Spaulding, Newburyport, Mch. 3; E. Steiger, New York, Feb. 25; Danzig, Die Naturforschende Gesellschaft, Oct. 4; Genève, Société de Physique et d' Histoire Naturelle, Nov. 1; Lyon, Société d' Agriculture, d' Histoire Naturelle, et des Artes Utiles, Dec. 20; New York Genealogical and Biographical Society, Feb. 18; Munchen, K. Bayerischen Akademie der Wissenschaften, Dec. 1.

Mr. JOHN ROBINSON spoke of the death of Mr. Abram F. Bosson, which occurred on the 21st ult., at his residence in Salem, by which the society loses one of the most prominent exhibitors of flowers at the horticultural exhibitions. Mr. Bosson's particular favorites were the dahlias and gladiolus; his stands of the former at the exhibitions ten or twelve years since were of the most gorgeous description. Of late years he has cultivated the gladiolus most extensively, the endless variety and profusion of which at the last series of exhibitions held by the Institute caused much comment, and gave great pleasure to the many visitors. After some other remarks the following resolutions were presented and unanimously adopted :—

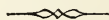
*Whereas*, The Essex Institute, by the death of Abram F. Bosson, loses an esteemed member and officer, therefore be it

*Resolved*, That the Institute recognizes the value of the services of the deceased as a promoter of its objects,



particularly in the department of horticulture, in which centred his entire interest. His large contributions to the exhibitions increased the usefulness of this department of the Institute, and thereby enabled the public to enjoy the beautiful flowers which he cultivated with so much care and well founded pride.

*Resolved*, That the members of the Institute, deeply regretting their loss, desire to express their sympathy to the family and friends of the deceased, and request that a copy of these resolutions be transmitted to them, and be entered upon the records.



#### REGULAR MEETING, MONDAY, MARCH 17, 1873.

Meeting this evening at 7 30 o'clock. The PRESIDENT in the chair. Records of preceding meeting read.

The SECRETARY announced the following correspondence :—

From Jacob Batchelder, Lynn, Mch. 1; William Cogswell. Salem, Mch. 17; Samuel G. Drake, Boston, Mch. 6; Samuel A. Drake, Boston, Mch. 14; J. N. Emery, Beverly, Mch. 11; Gurdon Saltonstall, Boston, Mch. 10; E. Steiten, New York, Mch. 3, 10; M. P. Wilder, Boston, Mch. 6; Buffalo Historical Society, Mch. 13; Gottingen, Die K. Gesellschaft der Wissenschaften, Mar. 1; Rhode Island Historical Society, Mch. 13.

The LIBRARIAN reported the following additions :—

#### *By Donation.*

BOARD OF PUBLIC CHARITIES OF PENN. Third Annual Report of, 1872. 1 vol. 8vo. Harrisburg, 1873.

BUSWELL, E. W., of Boston. Miscellaneous pamphlets, 50.

BUTLER, B. F., of U. S. House of Rep. Speech in U. S. House of Rep., Feb. 14, 15, 1873. 8vo pamph.

FOOTE, Rev. HENRY W., of Boston. Discourse given in King's Chapel, Boston, Dec. 24, 1871, by donor. 8vo pamph.

GIRARD, Dr. CHAS., of Paris. Principes de Biologie a la Médecine, by donor. 32mo pamph.

HALE, CHAS. R., of Auburn, N. Y. Miscellaneous pamphlets, 3.

JAMES, THOS. P. *Journal of a Botanical Excursion*, by F. Pursh. 12mo pamph. Phila. 1869.

LEE, JOHN C. *Commercial Bulletin* for Feb. 8, 15, 22, Mch. 1, 8, 1873.

PUTNAM, F. W. *Miscellaneous pamphlets*, 28.

SMITH, N., of Pembroke. *Annual Report of the School Committee of the Town of Pembroke*. 1872-3. 8vo pamph.

STEPHENS, W. H., of Lowville, N. Y. *Miscellaneous Catalogues*, 15.

STONE, E. M., of Providence, R. I. *Thirty-first Annual Report of the Ministry at Large*, Feb. 3, 1873. 8vo pamph.

SUMNER, CHAS., of U. S. S. *Reports in the Senate of U. S.* 3d Sess., 42d Cong., Feb. 20, 1873. 8vo pamph.

U. S. PATENT OFFICE, Washington, D. C. *Official Gazette*, Jan. 28, Feb. 4, 11, 1873.

VASSAR, Rev. T. E., of Lynn, Mass. *Address at the Funeral Services of James M. Nye, M. D., by donor*. 8vo pamph. 1872.

WILDER, M. P., Boston. *Lecture on the Hybridization of Plants*, by donor. 8vo pamph. 1872. *California*, by donor. 8vo pamph.

### *By Exchange.*

ACADEMIE IMPÉRIALE DES SCIENCES, BELLES-LETTRES ET ARTS, DE LYON. *Memoires, Classe des Sciences*. Tome xviii, 1870-71. 8vo pamph.

INSTITUT NATIONAL GENEVOIS IN GENEVÈ. *Bulletin*, No. 36, Vol. xvii, pp. 1-216. 12mo pamph.

KÖNIGLICH BAYERISCHEN AKADEMIE DER WISSENSCHAFTEN, ZU MÜNCHEN. *Sitzungsberichte d. philos., Classe 1871, Heft 4-6, 1872, Heft 1-3. Sitzungsberichte, d. Math., Classe 1871, Heft 3, 1872. Inhaltsverzeichnis, zu 1860-1870*. 8vo pamph.

MINNESOTA HISTORICAL SOCIETY. *Collections*. Vol. i, 1850-56. 1 vol. 8vo.

NATURFORSCHENDE GESELLSCHAFT IN DANZIG. *Shriften, Neue Folge*. Band iii, Heft 1, 1872. 8vo pamph.

NEW JERSEY HISTORICAL SOCIETY. *Proceedings*. Vol. iii, 2d Series, 1873. No. ii. SENCKENBERGISCHE NATURFORSCHENDE GESELLSCHAFT, ZU FRANKFORT A M. *Bericht*, 1871-72. 8vo pamph.

SOCIÉTÉ D'ACCLIMATATION ZU PARIS. *Bulletin Mensuel*, Tome ix, 2 me Série, No. 11, 1872. 8vo pamph.

SOCIÉTÉ D'AGRICULTURÉ D' HISTOIRE NATURELLE ET DES ARTS UTILES IN LYONS. *Annales*, 4th Series, II Tome, 1869. 8vo pamph.

SOCIÉTÉ D'AGRICULTURE. SCIENCES ET ARTS DE LA SARTHE ZU LE MANS. *Bulletin*, Tome xiii, 1871-72. 2 pamphlets. 8vo.

SOCIÉTÉ D'ANTHROPOLOGIE IN PARIS. *Bulletins*, Tome vi, Nov., Dec., 1871. Tome xvii, Jan.-Apr., 1872. 4 pamphlets. 8vo.

SOCIÉTÉ DE PHYSIQUE ET D' HISTOIRE NATURELLE IN GENÈVE. *Mémoires*, Tome xxii, 2d pt., 1872. 4to pamph.

SOCIÉTÉ LINNEENE DE LYON. *Annales, Années, 1870-71. (Nouvelle Séries)*. Tome xviii. 8vo pamph.

VEREIN FÜR NATURKUNDE IN WIESBADEN. *Jahrbücher, Jahrg, xxv, xxvi, 1871-72*. 8vo pamph.

PUBLISHERS. *American Journal of Science. American Naturalist. Francis's Catalogue. Gardener's Monthly. Gloucester Telegraph. Hardwicke's Science Gossip. Haverhill Gazette. Ipswich Chronicle. Lawrence American. Lynn Reporter. Lynn Transcript. Medical and Surgical Reporter. Nation. Nature. Peabody Press. Quaritch's Catalogue. Salem Observer.*

The following paper was received from Mr. HAROLD HERRICK of New York :—

A PARTIAL CATALOGUE OF THE BIRDS OF GRAND MENAN, N. B.

GRAND MENAN, the point at which these notes were made, being situated at the mouth of the Bay of Fundy, about ten miles from the coasts of Maine and New Brunswick and twice that distance from Nova Scotia, possesses one of the most interesting faunæ of the Atlantic coast, forming, as it were, a neutral ground upon which stragglers from our southern districts mingle with those of more Arctic birth, and unite to form a local fauna of considerable extent and great interest.

The island is about twenty miles long by five wide. On its western side, for about twelve miles, the surface slopes gently to the shore and is well settled, but all the rest of the coast from the "Southern Head" to the "Swallow-tail Light," is one continuous line of precipitous cliffs, rising perpendicularly to the height of from two to six hundred feet, and broken only by an occasional swale through which pours some miniature torrent. The interior is composed of dense forests of spruce and pine, alternating with alder swamps and heaths of Labrador Tea, the latter the chosen abiding place of thousands of *Lepus Americanus*.

Lying off from Grand Menan are numerous small islands, where the sea-birds breed and have bred, to some considerable extent, since the memory of man. Among the chief of these islands are :—Green, White-horse, Ross, Two, Three and Whitehead islands. But these beloved nesting-places are being gradually broken up, and the persecuted birds are either retiring farther north, or are betaking themselves to the inaccessible cliffs where they cannot be molested.



Audubon was the first student of nature who ever explored the wild and rocky shores of Menan, and he, it seems, not very thoroughly. I believe no catalogue of its local birds has ever been published. Mr. G. A. Boardman's list of "Birds of Calais and Islands in the Mouth of the Bay of Fundy," gives many species that are to be found at Calais, though a number of them never occur on Menan.

The following catalogue and annotations are the result of two visits to the island, one in May, 1871, the other during June, July and August, 1872. I must in this connection acknowledge my indebtedness to Mr. S. F. Cheney, of Grand Menan, for his universal kindness and for the great aid he tendered me, in procuring many valuable specimens; also for much useful information. I cannot but recommend him to all who may contemplate a visit to the island, either for recreation or study, as one who will give all the assistance in his power, and make their stay as enjoyable as possible.

#### TURDIDÆ.

1. *Turdus migratorius*. Robin. Very common and breeds abundantly, nesting about June 5.

2. *Turdus Pallasi*. Hermit Thrush or Cathedral Bird. It is common and breeds. The song of this species, as well as that of the succeeding, is here very full and strong.

3. *Turdus Swainsonii*. Olive-backed Thrush. Quite common; breeds. I was fortunate enough to secure a fine nest and complement of three eggs, June 21. *T. fuscescens* very possibly occurs, but was not noted.

#### SAXICOLIDÆ.

4. *Sialia sialis*. Bluebird. Rare. I took none, but saw the remains of a specimen that had been shot July 20. This must be its eastern limit, as it is as rare on the main shore as here.

#### PARIDÆ.

5. *Parus atricapillus*. Chickadee. Very common. Breeds abundantly.

6. *Parus Hudsonius*. Hudsonian Titmouse. Not very common; only two were noted. It probably breeds in the dense forests. The only specimen captured was among a large flock of *P. atricapillus*, and was first noticed from its exceedingly loud note, which is much harsher, shriller and more quickly given than *P. atricapillus*.

#### SITTIDÆ.

7. *Sitta Canadensis*. Red-bellied Nuthatch. Common; breeds.  
8. *Sitta Carolinensis*. White-bellied Nuthatch. Rare.

#### CERTHIIDÆ.

9. *Certhia familiaris*. Brown Creeper. Not common; breeds.

#### TROGLODYTIDÆ.

10. *Troglodytes hyemalis*. Winter Wren. Common; breeds. Its superb song is here heard to the utmost advantage, in the solitudes of its native forests and in the tangled and almost impenetrable swamps. *Troglodytes ædon* may occur.

#### MOTACILLIDÆ.

11. *Anthus Ludovicianus*. Titlark. Occurs in spring and fall, but does not breed.

#### SYLVIIDÆ.

12. *Regulus calendulus*. Ruby-crowned Wren. Common in spring and fall, but passes to the north to breed.

13. *Regulus satrapa*. Golden-crowned Wren. Common; breeds. I was unable to discover any nests, although I could see, by the actions of the parents, that they had young near by.

#### SYLVICOLIDÆ.

14. *Mniotilta varia*. Black and White Creeper. Rather uncommon; breeds.

15. *Parula Americana*. Blue Yellow-back. Rare. I took a single specimen in May.

16. *Geothlypis trichas*. Maryland Yellow-throat. Exceedingly common. Breeds in abundance in all the heaths of Labrador Tea. A nest taken June 20 was composed largely of feathers of *Larus argentatus*.

17. *Helminthophaga ruficapilla*. Nashville Warbler. Common; breeds.

18. *Helminthophaga peregrina*. Tennessee Warbler. Not rare; breeds.

19. *Dendræca virens*. Black-throated Green Warbler. Common; breeds, frequenting the thick spruces.
20. *Dendræca Canadensis*. Black-throated Blue Warbler. Rare; may breed.
21. *Dendræca Pennsylvanica*. Chestnut-sided Warbler. Rare.
22. *Dendræca coronata*. Yellow rump Warbler. Very common; breeds.
23. *Dendræca Blackburniæ*. Blackburnian Warbler. Rare; may breed.
24. *Dendræca striata*. Black Poll. The most common warbler; breeds everywhere, but I was not fortunate enough to take a nest.
25. *Dendræca castanea*. Bay-breasted Warbler. Rare; may breed.
26. *Dendræca æstiva*. Yellow Warbler. Rare. I took but three birds and one nest.
27. *Dendræca maculosa*. Magnolia Warbler. Common. On June 27th I took a nest containing four fresh eggs, with advanced embryos. It was in a small spruce, not more than two feet from the ground, on the edge of a heath, and was very slightly built.
28. *Dendræca palmarum*. Yellow Red-poll. Not common, and does not breed.
29. *Dendræca tigrina*. Cape May Warbler. Rare; may breed.
30. *Seiurus aurocapillus*. Golden-crowned Thrush. Quite rare; probably breeds. I took but one. *S. Newboracensis* may occur.
31. *Myiodiocetes pusillus*. Green Black-capped Flycatcher. Rare. I do not think it breeds.
32. *Myiodiocetes Canadensis*. Canada Flycatcher. Rare; may breed.
33. *Setophaga ruticilla*. Redstart. Very common; breeds.

#### HIRUNDINIDÆ.

34. *Hirundo horreorum*. Barn Swallow. Common; breeds.
35. *Hirundo lunifrons*. Eave Swallow. Common; breeds.
36. *Hirundo bicolor*. White-bellied Swallow. Common; breeds.
37. *Cotyle riparia*. Bank Swallow. Common; breeds.
38. *Progne subis*. Purple Martin. Rare on Menan but very common on the Maine coast.

#### VIREONIDÆ.

39. *Vireo olivaceus*. Red-eyed Vireo. Rare; may breed.

#### AMPELIDÆ.

40. *Ampelis cedrorum*. Cedar Bird. Very common summer resident.

## LANIDÆ.

41. *Collurio borealis*. Great Northern Shrike. Common in winter, but does not breed.

## FRINGILLIDÆ.

42. *Pinicola Canadensis*. Pine Grosbeak. Not rare in winter.  
 43. *Carpodacus purpureus*. Purple Finch. Common.  
 44. *Chrysomitris tristis*. Goldfinch. Common during July and August, but does not breed. The flocks appeared to be passing to and fro between Maine and Nova Scotia.  
 45. *Chrysomitris pinus*. Pine Finch. Rather uncommon; may breed.  
 46. *Curvirostra Americana*. Red Crossbill. Not rare; probably breeds in the thick woods. I took it in August.  
 47. *Curvirostra leucoptera*. White-winged Crossbill. Not rare in winter.  
 48. *Ægiolthus linarius*. Redpoll. Common in winter.  
 49. *Plectrophanes nivalis*. Snow Bunting. Common in winter.  
 50. *Plectrophanes Lapponicus*. Lapland Longspur. Occurs in winter.  
 51. *Passerculus savanna*. Savannah Sparrow. Breeds everywhere. I took numerous nests.  
 52. *Zonotrichia albicollis*. White-throated Sparrow. Common; breeds plentifully.  
 53. *Zonotrichia leucophrys*. White-crowned Sparrow. Occurs during migrations.  
 54. *Junco hyemalis*. Black Snowbird. Very common; breeds everywhere.  
 55. *Spizella monticola*. Tree Sparrow. Occurs in autumn.  
 56. *Melospiza melodia*. Song Sparrow. Rather uncommon. I took but one nest and three or four birds.  
 57. *Melospiza palustris*. Swamp Sparrow. Not rare; breeds.  
 58. *Passerella iliaca*. Fox Sparrow. Occurs during migrations, but does not breed.  
 59. *Guiraca Ludoviciana*. Rose-breasted Grosbeak. Very rare. I took a fine ♂ May 16, but saw no more. Mr. Cheney never noticed it before.  
 60. *Guiraca cærulea*. Blue Grosbeak. In the spring of 1861, Mr. Cheney shot a fine ♂ specimen and sent it to G. A. Boardman, Esq., in whose cabinet it now is.

## ALAUDIDÆ.

61. *Eremophila alpestris*. Shore Lark. Occurs plentifully in winter.

# BULLETIN

OF THE

## ESSEX INSTITUTE.

---

VOL. 5.                      SALEM, MASS., MARCH, 1873.                      NO. 3.

---

One Dollar a Year in Advance. 10 Cents a Single Copy.

---

REGULAR MEETING, MONDAY, MARCH 17, 1873.

A PARTIAL CATALOGUE OF THE BIRDS OF GRAND MENAN, N. B.

[ *Continued.* ]

### ICTERIDÆ.

62. *Agelaius phœniceus*. Red-winged Blackbird. Has been noticed by Mr. Cheney, but does not breed.

63. *Quiscalus versicolor*. Crow Blackbird. Occurs, but is rare. Others of this family may occur, as they are found on the mainland, but they cannot be common here, else they would have been noted.

### CORVIDÆ.

64. *Corvus carnivorus*. Raven. Very common; breeds in abundance, placing its nest indiscriminately on the trees or on the cliffs. The same nest is frequented for many years. The eggs are deposited about the 10th of March. These birds are universally hated; and in truth it is no vulgar prejudice, for they are very destructive, especially to young lambs; and no chance is lost of shooting them, so that with all their proverbial vigilance, they annually decrease. The 12th of June I found an enormous nest on the outer Wood Island. It was placed on the cliff so as to be perfectly inaccessible, and contained four fully fledged young, two of which were dislodged by the plentiful use of stones. The nest in itself is a curiosity worth seeing and would make no mean load for a horse to draw. It had evidently been



the home of many broods of young plunderers, and probably will continue to be for some time to come, and a wild enough home it is, with no sound but the roar of the surf below and the harsh scream of the gull above.

65. *Corvus Americanus*. Crow. Here as elsewhere common; breeds abundantly. I think the eggs collected here are of a darker color and more intensely spotted than those collected further south. In fifty specimens obtained, there was scarcely a light example, while in the same number from Long Island or New Jersey there would be a very large percentage of light and sparsely spotted specimens.

66. *Cyanurus cristatus*. Blue Jay. Common; breeds.

67. *Perisoreus Canadensis*. Canada Jay. Not rare in winter; it may breed in the thick woods and swamps, but was not noted.

#### TYRANNIDÆ.

68. *Tyrannus Carolinensis*. Kingbird. Common during early June, but by the 20th all had passed over to the mainland. This seems rather strange as there is no obvious reason why Grand Menan should not afford as good facilities for the breeding of this species as New Brunswick or Nova Scotia.

69. *Contopus virens*. Wood Pewee. Not rare; breeds.

70. *Empidonax Traillii*. Traill's Flycatcher. Rather common summer resident, but extremely difficult to procure, because of its retiring habits. Its note is frequently heard in the alder swamps, but it is a rare occurrence to see one.

71. *Empidonax flaviventris*. Yellow bellied Flycatcher. Rare; probably breeds. I took but a single specimen.

#### ALCEDINIDÆ.

72. *Ceryle alcyon*. Kingfisher. Not common. I did not meet with it breeding.

#### CAPRIMULGIDÆ.

73. *Chordeiles popetue*. Night Hawk. Common; breeds. *A. vociferus* may occur, as it is given by Boardman as a summer resident at Calais.

#### CYPSELIDÆ.

74. *Chatura pelasgia*. Chimney Swallow. Not common; breeds.

#### TROCHILIDÆ.

75. *Trochilus colubris*. Ruby-throated Hummingbird. This hardy little wanderer is not uncommon in this cold and bleak region, where birds of stronger flight and hardier growth do not venture.

## CUCULIDÆ.

76. *Coccygus erythrophthalmus*. Black-billed Cuckoo. Common; breeds. I took a nest, containing three fresh eggs, July 10. *C. Americanus* may occur, as it is given as common at Calais (Boardman).

## PICIDÆ.

77. *Picus pubescens*. Downy Woodpecker. Common; breeds.

78. *Picus villosus*. Hairy Woodpecker. Not rare; breeds.

79. *Picoides arcticus*. Three-toed Woodpecker. Not rare in winter; may breed on the back of the island in the heavy timber, where few persons ever go. *P. hirsutus* probably occurs in winter.

80. *Sphyrapicus varius*. Yellow-bellied Woodpecker. Not common; may breed.

81. *Colaptes auratus*. Golden-winged Woodpecker, called here the Wood Pigeon. Very common; breeds.

## STRIGIDÆ.

82. *Bubo Virginianus*. Great Horned Owl. Occurs in the forests, but is not often seen.

83. *Scops asio*. Mottled Owl. Common; breeds.

84. *Otus Wilsonianus*. Long-eared Owl. Rather common during summer. I got a set of fresh eggs from Whitehead Island, May 24, 1871.

85. *Brachyotus Cassinii*. Short-eared Owl. Not rare. I secured a set of eggs from the same locality as the preceding.

86. *Syrnium cinereum*. Great Gray Owl. Occurs in winter.

87. *Nyctea nivea*. Snowy Owl. Very common in winter; remains till late in spring.

88. *Surnia ulula*. Hawk Owl. Rather rare; probably breeds, as its eggs have been taken at Calais (Boardman). *S. nebulosum* and *N. acadica* probably occur.

## FALCONIDÆ.

89. *Falco anatum*. Duck Hawk. Common; breeds on the cliffs, but in such inaccessible situations that its nest is rarely taken. There is a place between "Fish Head" and the "Old Bishop" known as the "Seven Days' Work," where the cliff is divided into seven strata as sharply defined as lines of masonry. On an indentation in the face of this cliff, about one hundred feet from the top, and one hundred and fifty feet from the bottom, a pair of these falcons have had their eyry for a succession of years; secure alike from the assaults of the most zealous naturalist and the small boy of bird's-egging proclivities.

90. *Hypotriorchis columbarius*. Pigeon Hawk. Not rare.

91. *Falco sacer*. Jerfalcon. Mr. Cheney has observed this superb falcon during winter.

92. *Tinnunculus sparverius*. Sparrow Hawk. Observed on Nantucket Island, near Menan.

93. *Astur atricapillus*. Goshawk. Not rare; probably breeds.

94. *Accipiter fuscus*. Sharp-shinned Hawk. Common; breeds. I secured a nest of four eggs from Whitehead Island.

95. *Buteo borealis*. Red-tailed Hawk. Not rare.

96. *Buteo lineatus*. Red-shouldered Hawk. Not rare.

97. *Archibuteo lagopus*. Rough-legged Hawk. Common; may breed.

98. *Circus Hudsonius*. Marsh Hawk. Very common; breeds abundantly in the heath, and subsists largely upon the young of *Lepus Americanus*. I took several nests.

99. *Pandion Carolinensis*. Fish Hawk. Not very common; perhaps breeds.

100. *Aquila Canadensis*. Golden Eagle. Given as rare (Boardman).

101. *Haliaetus leucocephalus*. Bald Eagle. Very common resident. On Feb. 20 Mr. Cheney found a nest in a tall pine, upon the main island; he ascended with some difficulty, and after digging a hole through the nest, secured the only egg it contained. The embryo was well advanced, but frozen. The parents did not attempt to molest him, but confined their demonstrations to sailing overhead at a respectful distance. The egg, now in my cabinet, is of a dirty white color, and measures three inches by two and thirty hundredths.

#### COLUMBIDÆ.

102. *Ectopistes migratorius*. Wild Pigeon. Not rare; said to breed in the interior of the island.

#### TETRAONIDÆ.

103. *Bonasa umbellus*. Ruffed Grouse. Rare. At North Head, June 29, I flushed a fine ♂, but was unable to shoot him; I was sorry for this, as the inhabitants insist that the grouse is never found on Menan.

#### CHARADRIIDÆ.

104. *Charadrius Virginicus*. Golden Plover. Rare.

105. *Aegialitis melodus*. Piping Plover. Given by Boardman as breeding on the islands in June. I did not meet with it, although I searched carefully.

106. *Æ. semipalmatus*. Ringneck Plover. Common; some breed.

#### SCOLOPACIDÆ.

107. *Philohela minor*. Woodcock. Rather rare; breeds in the thick alder swamps.

108. *Gallinago Wilsonii*. Wilson's snipe. Rare.

109. *Macrorhamphus griseus*. Red-breasted Snipe. Common in July.

110. *Pelidna Americana*. Red-backed Sandpiper. Not common.
111. *Ereunetes pusillus*. Semipalmated Sandpiper. Very common during August. One day while in pursuit of plover, I killed, at a single discharge, twenty-six from a passing flock.
112. *Tringa canutus*. Robin Snipe. Rather rare during summer.
113. *Arquatella maritima*. Purple Sandpiper. Very common in winter, immense flocks frequenting the stony beaches. In summer, rare. I took a single specimen, Aug. 13, among a large flock of *E. pusillus*.
114. *Actodromas minutilla*. Least Sandpiper. Very common in August.
115. *Symphemia semipalmata*. Willet. Rather common in August. The old men tell about a bird they call a "Tinkasheer" that used to breed in abundance on Menan fifty years ago, and from their description it seems to be identical with the species in question.
116. *Gambetta melanoleuca*. Winter Yellow Legs. Common.
117. *Gambetta flavipes*. Summer Yellow Legs. Common.
118. *Rhyacophilus solitarius*. Solitary Sandpiper. Common.
119. *Tringoides macularius*. Spotted Sandpiper. Common; breeds everywhere.
120. *Philomachus pugnax*. Ruff. Given by Boardman.
121. *Limosa Hudsonica*. Hudson Godwit. Mr. Cheney sent me a pair that he shot in November, 1871. They were the only ones he ever saw.
122. *Numenius borealis*. Esquimaux Curlew. Rare.
123. *N. longirostris*. Long-billed Curlew. Not rare in autumn.
124. *N. Hudsonicus*. Short-billed Curlew. Rare during migrations.

#### HÆMATOPODIDÆ.

125. *Streptilas interpres*. Turnstone. Not rare in August.

#### PHALAROPODIDÆ.

126. *Phalaropus hyperboreus*. Northern Phalarope, "Sea Goose." Very common. Thousands may be seen all summer on the "Ripplings" about eight miles from Menan, where they congregate to feed on the shrimp and animalculæ that are drifting in the eddies made by the advancing and receding tide. They never come on shore unless driven by storms, and are so tame, especially in foggy weather, that I have almost run them down with a sail boat. *P. Wilsonii* and *fulicarius* probably occur.

#### ARDEIDÆ.

127. *Ardea herodias*. Great Blue Heron. Common; but I did not find it breeding.
128. *Botaurus lentiginosus*. Bittern. Rather rare.
129. *Butorides virescens*. Green Heron. Not rare; it may breed, but I do not think it does.

## ANATIDÆ.

130. *Anser hyperboreus*. Snow Goose. Rare in winter.
131. *Bernicla Canadensis*. Canada Goose. Common in spring and fall; bred abundantly in years past.
132. *Bernicla branta*. Brant. Common during migrations.
133. *Anas boschas*. Mallard. Very rare.
134. *Anas obscura*. Black Duck. Common; breeds.
135. *Dafila acuta*. Pintail. Rare.
136. *Nettion Carolinensis*. Green-winged Teal. Common.
137. *Querquedula discors*. Blue-winged Teal. Rare.
138. *Mareca Americana*. Widgeon. Rare.
139. *Spatula clypeata*. Shoveller. Rare.
140. *Chaulelasmus streperus*. Gadwall. Rare.
141. *Aix sponsa*. Summer Duck. Rather rare.
142. *Fulix marila*. Greater Black-head. Uncommon.
143. *Fulix affinis*. Lesser Black-head. Common.
144. *Aythya Americana*. Red-head. Not uncommon.
145. *Aythya vallisneria*. Canvas-back. Rare.
146. *Bucephala Americana*. Golden-eye. Common in winter.
147. *Bucephala albeola*. Buffle-head. Very common in winter.
148. *Bucephala islandica*. Barrow's Golden Eye. Rare.
149. *Histrionicus torquatus*. Harlequin Duck. Common in winter.
- It is noted, among gunners, for its diving propensities, it being almost impossible to shoot one sitting on the water, as they go under at the flash. I do not think it breeds now, although it may have done so in years past.
150. *Harelda glacialis*. Old Squaw. Very common in winter; may breed, as I saw a pair in full breeding plumage, that had been shot June 18. They would scarcely have been about at that late day without having a nest on one of the islands.
151. *Camptolemus Labradorius*. Labrador Duck. Very rare. I received a ♀ from Mr. Cheney, that had been shot in April, 1871.
152. *Melanetta velvetina*. Velvet Duck. Common in winter. A few remain all summer.
153. *Pelionetta perspicillata*. Surf Duck. Common in winter. One day in June a specimen alighted in the yard of a house on Whitehead Island, and was captured alive.
154. *Eidemia Americana*. Scoter. Common in winter.
155. *Somateria mollissima*. Eider Duck. This is the most common of all the ducks, breeding in abundance on all the small islands about Menan, but it is fast decreasing, as not one bird in three raises any progeny, because of the continued depredations of the islanders, who rightly esteem their eggs as a great delicacy, and collect them as fast as laid. Their eggs are easily found, because of the careless manner



in which the nest is placed, an old gull's nest, with the addition of a little down, often being made to answer in place of a more elaborate structure. I saw the young, in companies of fifteen or twenty, following their parents, in the beginning of August.

156. *Somateria spectabilis*. King Eider. Rare.

157. *Erismatura rubida*. Ruddy Duck. Uncommon.

158. *Mergus Americanus*. Sheldrake. Common.

159. *Mergus serrator*. Red-breasted Merganser. It used to breed but has almost entirely left the island during the season of incubation, those remaining being only immature or unproductive birds.

160. *Lophodytes cucullatus*. Hooded Merganser. Not common and does not breed.

#### PELECANIDÆ.

161. *Pelecanus erythrorhynchus*. American Pelican. A specimen was taken some years since.

#### SULIDÆ.

162. *Sula bassana*. Gannet. It was once common and used to breed on the "Gannet Rock," but since the lighthouse has been built, the Gannets have left. The only instance in which I found it was near Dark Harbor, on back of Menan, where one solitary individual was sitting like a sentinel on a piece of the wreck of the steamer New England, that had gone to pieces on the Wolf Islands, some days before.

#### PHALACROCORACIDÆ.

163. *Graculus carbo*. Common Cormorant. Occurs in spring and fall.

164. *Graculus dilophus*. Double-crested Cormorant. Occurs, but does not breed now; probably it did once.

#### PROCELLARIIDÆ.

165. *Procellaria leucorrhoa*. Leach's Petrel. Very common and breeds by thousands on the Green and Whitehorse Islands, where the soil is so impregnated with its peculiar odor, that it is quite perceptible some distance to leeward on a windy day. They deposit their single egg about the 8th of June, incubate from four weeks to a month and if robbed will lay three times. Mr. Cheney has assured me that once, while duck shooting on Green Island on November 10, his dog dug out a young petrel still in the down, when all the other summer visitors had departed for more southern regions. Though so elegant and graceful a bird on the water, this petrel seems to lose all understanding and power on land, and when dug from its hole prefers to skulk away in the grass to taking flight; and may even be thrown like a ball from one person to another. It breeds in such astonishingly large communities that it is nothing of a feat to dig four or five hundred eggs in a single day; but the most energetic oölogist would scarcely undertake a second day's work, as the first would have worn

off his finger-nails, and demoralized his hands and arms to such an extent that he would gladly stay at home and blow his eggs.

166. *Oceanites oceanica*. Wilson's Petrel. Occurs on the fishing grounds, but does not breed.

167. *Procellaria glacialis*. Fulmer. Occurs on the fishing grounds in autumn.

168. *Nectris fuliginosus*. Sooty Shearwater. This species and the two succeeding are given by Boardman, but were not noted by myself.

169. *Puffinus major*. Greater Shearwater. Haglin.

170. *Puffinus anglorum*. Mank's Shearwater. Black Haglin.

#### LARIDÆ.

171. *Stercorarius pomatorhinus*. Pomarine Jaeger. Common in autumn on the fishing grounds.

172. *Stercorarius parasiticus*. Arctic Jaeger. Common fall visitant; comes about the fishing boats to pick up bits of bait, and is so tame that it is often killed with a gaff.

173. *Stercorarius cephus*. Buffon's Jaeger. "Marlin-spike Bird." "Common in the Bay of Fundy in August" (Boardman).

174. *Larus glaucus*. Burgomaster. Winter resident.

175. *Larus Hutchinsii*. Hutchins' Gull. I have a fine specimen of this rare gull, killed by Mr. Cheney's son in January, 1872. It corresponds exactly with a specimen, in the cabinet of G. N. Lawrence, Esq., that was shot on Long Island.

176. *Larus leucopterus*. White-winged Gull. Noted by Dr. Brewer.

177. *Larus marinus*. Great Black-backed Gull. Common winter resident; used to breed with the Herring Gulls, but being of a wilder nature it was the first to move in the direction of new and more secure breeding grounds.

178. *Larus argentatus*. Herring Gull. Very abundant and breeds on almost all the islands, in every situation, from the open heath to the ragged and precipitous cliff. On the Southern Head is a very extensive nursery, and from the edge of the cliffs the eggs can be counted by the hundred, all the way down, until they grow indistinguishable in the distance. But little effort is made to secure these eggs, as of late years it has been rightly deemed too dangerous an undertaking to descend the cliffs, even with the aid of a rope. I know of at least one adventurous climber who met with a fearful death in consequence of his temerity. The present inhabitants of the island can remember when it was an easy thing to go out and collect four or five hundred eggs in an afternoon; but, alas! those times are no more and unless something is done, and that soon, to prevent the promiscuous destruction of these useful birds, gulls' egging at Grand Menan

will be among the things of the past; for though to a stranger the eggs seem so abundant, the inhabitants represent them as few compared with the myriads of former years.

179. *L. Delawarensis*. Ring-billed Gull. Common during migrations.

180. *Chrococephalus atricella*. Laughing Gull. Given as breeding by Boardman.

181. *Chrococephalus Philadelphia*. Bonaparte's Gull. Common in autumn.

182. *Rissa tridactyla*. Kittiwake. Common in winter but does not breed, which is curious, as the cliffs afford most excellent nesting-places.

183. *Pagophila eburnea*. Ivory Gull. Winter visitant.

184. *Sterna Wilsoni*. Wilson's Tern. Breeds on the Seal islands.

185. *Sterna macroura*. Arctic Tern. Rather rare. Others of this family probably occur, but are not recorded.

#### COLYMBIDÆ.

186. *Colymbus torquatus*. Loon. Common about the islands, but does not breed.

187. *C. arcticus*. Black-throated Diver. Occurs in winter.

188. *C. septentrionalis*. Red-throated Diver. Winter resident.

189. *Podiceps griseigena*. Red-necked Grebe. Rather common. *P. cristatus* and *podiceps* may occur, as they have been noted at Calais.

#### ALCIDÆ.

190. *Alca torda*. Razor-billed Auk. This bird is still common about the Murre rocks and Seal islands, where it breeds without much molestation. A curious circumstance connected with the breeding of this species here is that it never associates with *Uria grylle*, but is sole occupant of these two places, which seem to afford as advantageous nooks and crannies to the Guillemot as to the Auk. The only explanation is that the Razor-bills drive them away.

191. *Alca impennis*. Great Auk. Formerly occurred, as bones have been dug from the shell-heaps of Nantucket island, close to Menan.

192. *Uria grylle*. Black Guillemot. Common yet, but is doomed to extinction; as are all the sea-birds that still haunt these old breeding places, each spring seeing fewer birds come back to breed than went away in the fall.

193. *Uria lomvia*. Foolish Guillemot. Common in winter, but never breeds.

194. *Mergulus alle*. Sea-dove. Common winter resident, but none stop to breed.

## TWENTY-FIFTH ANNIVERSARY,

WEDNESDAY, MARCH 5, 1873.

---

DURING the winter of 1872-3, at several meetings of the Essex Institute, the matter of the proper celebration of the twenty-fifth anniversary of the Society was discussed, and as the outcome of these deliberations, the matter was put into the hands of a committee, with full powers. The committee consisted of H. Wheatland, A. C. Goodell, Jr., Wm. Sutton, F. W. Putnam, D. B. Hagar, A. H. Johnson, John Robinson, James O. Safford, E. S. Atwood, E. C. Bolles, G. D. Phippen, Joshua Coit, George M. Whipple, Caleb Cooke, Wm. Neilson.

The various sub-committees were chosen as follows :—

*On Invitations*, A. C. Goodell, Jr., E. S. Atwood, D. B. Hagar, H. Wheatland, E. C. Bolles.

*On Finance*, William Neilson, J. O. Safford, A. C. Goodell, Jr., H. Wheatland.

*On Decorations*, John Robinson, C. Cooke.

*On Banquet*, A. C. Goodell, Jr., E. S. Atwood, A. H. Johnson, D. B. Hagar, G. M. Whipple.

*On Printing*, F. W. Putnam, J. O. Safford, Henry Wheatland.

Weekly meetings of the committee, for the comparison of views and the perfecting of plans, were held at the houses of various members, and arrangements were finally made for a literary festival and banquet at Plummer Hall on the evening of March 5, 1873. Invitations were sent to various gentlemen of high literary and scientific repute, and tickets were issued to members and their friends at five dollars each.

About seven o'clock the members and invited guests

assembled in the upper hall of the Institute building. The beauty and talent of the city were well represented. Among the distinguished invited guests, most of whom were present, were his Excellency the Governor; President Loring of the Senate; Speaker Sanford of the House; his Honor Mayor Cogswell; Hon. R. C. Winthrop, President of Massachusetts Historical Society; Hon. Stephen Salisbury, President of American Antiquarian Society; Prof. Asa Gray, President of American Academy of Arts and Sciences; Hon. Marshall P. Wilder, President of the New England Historic-Genealogical Society; T. T. Bouvé, President of the Boston Natural History Society; J. D. Runkle, President of the Massachusetts Institute of Technology; William Wood, M. D., President of the Portland Society of Natural History; O. C. Marsh, Professor of Paleontology in Yale College; Nathaniel Paine, President of the Worcester Natural History Society; President Eliot and Professors Agassiz, Pierce and Lovering of Harvard University; John G. Whittier; E. H. Chapin, D. D., of New York, and others.

After the guests had assembled and a short time had been spent in social intercourse, the company proceeded to the lower hall, which had been fitted up as a banquetting room. Three tables extended through the entire length of the hall, at the heads of which were seated Vice Presidents Wm. Sutton, A. C. Goodell, Jr., and F. W. Putnam, and at right angles to these, on the platform, a table was spread for the invited guests. In the alcoves, to the right and left of the guest table, were spread tables for the reporters. The hall had been tastefully decorated under the direction of Messrs. John Robinson and Caleb Cooke. On the gallery front, over the guest table, was a white tablet, bordered with green, with the inscription in box and brilliant autumn leaves,



1848—E. I.—1873. Running round the gallery front, over each alcove, were similar tablets, bearing the names of the Presidents of the Institute, and of the Essex Historical and Essex County Natural History Societies, by whose union the Institute was formed. The names as read round were as follows:—NICHOLS, TUCKER, WHITE, HUNTINGTON, WHEATLAND, PEABODY, PICKMAN, HOLYOKE, RUSSELL. To the right and left of the stage were tablets inscribed: E. H. S.—1821. E. C. N. H. S.—1833. In front of each alcove in the library was suspended a hanging basket filled with growing plants. The columns were wreathed with evergreen, and topped with masses of hemlock. To the right and left of each column were carved brackets, with vases of choice flowers. The fronts of the library cases were covered with material of a pearl gray color, to form a background for pictures. Portraits of Goethe, Humboldt, Hyrtl, Müller, Cuvier, Agassiz, Hawthorne and other eminent men adorned these improvised walls. Ferns and growing plants of every variety were massed wherever there was room to display them. The whole arrangement evinced fine taste and a nice appreciation of the proprieties of the occasion.

The banquet was prepared under the supervision of Mr. Edward Cassell. The tables glittered with elegant china and silver ornaments, relieved by bouquets of exquisite flowers furnished by Francis Putnam and arranged with great taste by W. H. Gardner. The supper, which was of several courses, was served up in the following order:

#### FIRST COURSE.

Raw Oysters; Escalloped Oysters; Curried Oysters;  
Lobster Salad; Chicken Salad.

#### SECOND COURSE.

Filet de Bœuf; Sweetbreads; Pâté of Chicken; Tongue.

## THIRD COURSE.

Boned Turkey; Grouse; Quail; Partridge; Fowls.

## FOURTH COURSE.

Frozen Pudding; Charlotte Russe; Tom Thumb;  
Bon Glace; Wine Jelly.

## FIFTH COURSE.

Ices: Chocolate, Vanilla, Lemon, Pine Apple, Strawberry, Harlequin Fruit.

## SIXTH COURSE.

Apples; Oranges; Bananas; Figs; Crystallized Fruits and Nuts.  
Cake: Currant, Citron, Pound, Sponge, Cocoanut,  
Macaroons, Meringues.  
Coffee; Tea.

The number who sat down to the feast must have been not far from one hundred and seventy, and included both ladies and gentlemen.

The company was seated at the table at half past eight, and was called to order by the President, Henry Wheatland, who requested the Rev. E. S. Atwood to offer prayer. After an hour pleasantly spent in discussing the supper in all its bearings, the company being regaled with the choice selections performed by Upton's Quadrille Band, the literary portion of the entertainment was introduced with the following address by the PRESIDENT:—

LADIES AND GENTLEMEN:—We are assembled this evening to commemorate the formation of the Essex Institute in 1848, by the union of the Essex Historical and the Essex County Natural History Societies. It is, perhaps, needless to trace in detail the growth of these institutions; the principal facts in their history having appeared in the printed publications of the Institute.

The occasion, however, suggests many associations that

cannot be passed over in silence; this place and its surroundings are crowded with them—the building—the varied relics—the books—are not without their history, and are continually reminding us of the debt of gratitude we owe to those through whose instrumentality they were obtained.

Some remind us of the Social Club, composed of the leading spirits of the town, that was wont to hold its weekly meetings, during the middle of the last century, at the old Pratt's Tavern, to discuss the topics of the day, especially those of a literary and scientific character. Thence originated the Social Library in 1761.

Others bear the signature of "R. Kirwan," a celebrated Irish chemist, and call to remembrance some of the scenes in the Revolutionary period,—the privateer Pilgrim, its bold and intrepid commander, Hugh Hill, his daring exploits, the capture, in the English Channel, of a schooner having on board a portion of the library of this distinguished chemist, the bringing of these books into the neighboring port of Beverly, the purchase of the same by some seven scientific men of Salem and Beverly,—and hence the origin of the Philosophical Library, in 1781.

The collection of log books and sea journals calls to mind that brilliant commercial career which immediately followed the closing drama of the Revolution, when the sails of our merchantmen whitened every sea, and the products of the most distant climes, "*divitis Indiæ usque ad ultimum sinum*," were landed at our wharves. In the midst of this prosperity the navigators in those remote seas organized a society to assist the widows and children of deceased members; to collect such facts and observations as tend to the improvement and security of navigation and to form a museum illustrative of the civil and natural history of the countries visited during their

long and protracted voyages. The nucleus then formed in 1799, by gradual accretions became the world-renowned museum of the East India Marine Society. This museum, and the scientific collections of the Institute, have recently been rearranged in the East India Marine Hall, under the direction of the trustees of the Peabody Academy of Science, and opened to the public, free, six days in the week.

The portraits on these walls, the old relics in the cabinets, the frame of the first building erected for the first church in Salem, cared for and placed in good condition for preservation by the kindness and liberality of our late President, Francis Peabody, are alike suggestive of topics for consideration ; but time will not permit me to dwell longer.

In 1638, Emmanuel Downing, of the Inner Temple, London, came to Salem, where he lived several years in great esteem, often representing the town in the General Court. His dwelling was on or near this spot, in the middle of an estate comprising some four acres. His wife was a sister of Gov. Winthrop. His son George, a lad of about fourteen summers, was preparing, under the tuition of Rev. John Fisk, to enter the college, where he graduated in the first class in 1642. This son then went to England, entered into Cromwell's service and became highly distinguished. Was his (Cromwell's) minister to the Hague, and afterwards held the same situation under Charles II, from whom he received a baronetcy ; united with "the blood of all the Howards," by marrying Frances, sister of the first Earl of Carlisle. A grandson, Sir George Downing, dying in 1747, left a large bequest (£150,000) for the founding of Downing College, in Cambridge, England.

Ann, the youngest daughter of Emmanuel, came into

possession of this estate, and the mansion in which she resided was a few rods west of this spot. She first married Capt. Joseph Gardner, who was killed, Dec. 19, 1675, at the great Narraganset Swamp fight, in King Philip's war. Secondly, she married Simon Bradstreet, and there the old Nestor governor of Massachusetts lived and died. The house was then known as the Bradstreet mansion, and was taken down about 1750. Gov. Bradstreet had previously married Ann, daughter of Gov. Thomas Dudley. She is the most distinguished of the early matrons by her literary powers; a volume of her poems is now extant.

Nearly opposite the last named house, on the western corner of Liberty street, was the residence of Major William Hathorne, who came to Salem in 1636, and from that date his name appears in our records as holding important positions,—Commissioner, Speaker of the House of Representatives, counsel in cases before the courts, judge on the bench, soldier commanding important and difficult expeditions, etc.

Johnson, in his "Wonder-Working Providence," thus says of him: "Yet, through the Lord's mercy, we still retain among our democracy the godly Captaine William Hathorne, whom the Lord hath imbued with a quick apprehension, strong memory and rhetorick, volubility of speech which hath caused the people to make use of him often in public service especially when they have had to do with any foreign government."

He died in 1681. His son John seemed to have inherited many of his traits of character, and to have succeeded in all his public honors, and held a like prominent position in public affairs till his decease, which occurred in 1717. In an easterly direction, on Union street, in a small two-story gambrel-roofed house, a descendant in the sixth generation was born, in 1804, whose name has



been equally if not more conspicuous in the field of letters than either of his ancestors had been in the civil history of the colony.

A few rods in a northerly direction we find the birth-place of Bowditch, whose "Navigator" is in the hands of every seaman, and who, as translator of La Place's "Mecanique Celeste," is ranked among the leading mathematicians of his age.

The house that was taken down to erect on its site the building in which we are assembled was the place where Prescott, the historian, first saw the light of day; and afterwards, for nearly half a century, it was the residence of one of our most successful and opulent merchants, Joseph Peabody.

In this connection, it is meet that we should pay a tribute of respect to the memory of Miss Caroline Plummer, a lady of great literary culture and refinement, who died in May, 1854, and bequeathed to the proprietors of the Salem Athenæum, the sum of thirty thousand dollars for the erection of a building, to deposit therein the books of the Athenæum, with liberty to have the rooms used for the meetings of literary and scientific societies and for the deposit of works of art and natural productions. If you desire to know in what manner this money has been expended, and ask for her monument, "Circumspice!"

This locality, around which cluster so many associations of exceeding interest to the student in history, the scholar, the scientist, and the general public, seems to be especially adapted for the establishment of an institution for the promotion of literature, science, and the arts. A good beginning has thus far been made,—additional land and more buildings will be requisite to furnish suitable accommodations for its proper management.

Let us resolve, henceforth, that we will not pause in our efforts until this so desirable an object shall have been successfully accomplished. Thus, supplementing the scientific collections in the hall now owned by the trustees of the Peabody Academy of Science, Salem will be well provided with materials for the promotion of general culture and education among her citizens.

A brief allusion to the tablets on the railing, containing the names of the several ex-presidents, may not be inappropriate at this time.

The first in chronological order, EDWARD AUGUSTUS HOLYOKE, M. D., LL. D., President of Essex Historical Society, 1821-1829, graduate of Harvard in the class of 1746, came to Salem in 1749. The first medical charge in his books bears date July 6, 1749; the last Feb. 17, 1829; covering a period of nearly eighty years in the profession at Salem; an active member of the Social Library in 1761; of the Philosophical Library in 1781; and at the time of his death, March 31, 1829, he was President of the Salem Athenæum, and of the Essex Historical Society; thus interested in the literary and scientific societies in Salem for sixty-eight years. He was an original member of the American Academy of Arts and Sciences, and also of the Massachusetts Medical Society; of both of these societies he had been elected President, of the latter institution the first.

BENJAMIN PICKMAN, President of Essex Historical Society 1829-35, a graduate of Harvard, class of 1784; member of the two houses of our State Legislature, and one term a member of Congress; a merchant, and a liberal friend to our public institutions. He died in 1843.

ICHABOD TUCKER, President of Essex Historical Society, 1835 to 1837; born in Leicester; graduate of Harvard in 1791; commenced the practice of the law in

Haverhill; removed to Salem about 1807; Clerk of the Courts for Essex for upwards thirty years; died in 1846.

DANIEL APPLETON WHITE, President of Essex Historical Society, 1837-48, and President of Essex Institute, 1848-61; born in that part of Methuen now Lawrence; graduate of Harvard in the class of 1797; commenced the practice of the law in Newburyport; removed to Salem in 1815; Judge of the Probate Court of Essex for more than forty years; died in 1861; a fine classical scholar.

ANDREW NICHOLS, President of Essex County Natural History Society, 1833 to 1845, a valued physician; born in the rural part of Danvers he early imbibed a taste for the study of nature, which continued through life. He was very conversant with the local natural history of this vicinity, and took a great pleasure in guiding his young friends to the rural retreats, in quest of some rare floral gems. He lived in South Danvers, now Peabody, and died March 31, 1853.

JOHN LEWIS RUSSELL, President of Essex County Natural History Society, 1845-48, Vice President Essex Institute 1848-61, a graduate of Harvard in the class of 1828, and of the Theological School in Cambridge in 1831, distinguished as a botanist, and especially conversant with our cryptogamic flora. He was also an able and instructive lecturer on the various departments of Natural History, especially in his favorite one, Botany.

ASAHEL HUNTINGTON, President of Essex Institute 1861-65, born in Topsfield; a graduate of Yale in 1819; commenced the practice of the law in Salem; District Attorney, and for many years preceding his death, which occurred Sept. 5, 1871, was the genial and efficient Clerk of the Courts for Essex.

FRANCIS PEABODY, President of Essex Institute 1865-7;

born on the spot where we are now assembled, and with the exception of a few years had resided in this immediate vicinity, always interested in scientific investigations and mechanical industries. He died October 31, 1867.

Before taking my seat, permit me to allude briefly to the status of the two societies at the time of the union. It required considerable billing and cooing to bring about the desired result, the organization of the two being on an entirely different basis.

The Historical Society always had a small membership. Members were elected; an entrance fee was required; no regular assessment, though occasionally one was levied; rooms never opened to the public at stated times, though persons could obtain access by calling upon the librarian or some officer who was always courteous and ready to grant any favor.

The Natural History Society was on an entirely different basis. Any inhabitant of the county could become a member by signing the constitution and paying the small annual assessment. The rooms were always central and accessible; opened frequently for horticultural and other exhibitions; its aim to make the rooms attractive, thereby to awaken a public interest in furtherance of its objects. The collections increased in value and importance; the membership was enlarged; consequently more available means to extend its operations. The Horticultural Exhibitions, though not an original object, became in course of a few years one of the most important features of the society, and at the time of the union were included as one of the departments. For several years exhibitions were held weekly during the summer months, with the annual in September, and increased in interest with each successive season.

Several nurseries were established, the demand for fruit

trees, and ornamental trees and shrubs increased, and Salem became, as it were, a centre for horticultural operations, and the exhibitions at the metropolis were largely indebted to the Salem gardens for the requisite proportion of fruits and flowers.

This city and vicinity had a goodly array of enthusiastic and successful cultivators of the choicest productions of Flora and Pomona; among them the name of Robert Manning stands prominent, as a pioneer in the cultivation of fruit, especially that of the pear. The garden of Mr. J. F. Allen exhibited for several seasons a fine display of that gorgeous lily "Victoria Regia," and his excellent treatise on that flower, with illustrations, finds a place in every public library. It was also noted for the great variety of grapes and other fruits grown under glass. The gardens and grounds of the Messrs. Putnam, Lee, Cabot, Emmer-ton, Upton, Ives, Bertram, Hoffman, Phippens, Ropes, Bosson, and others, may be mentioned in this connection.

The guiding principles that actuated the Natural History Society were engrafted upon the new organization, and to these what little success it has had may be justly attributed.

For an institution to succeed it is necessary to interest the people in its success, by horticultural and other exhibitions, permanent display of works of art and natural productions, instructive and at the same time attractive lectures, field and other meetings that will combine amusement with instruction, so far as not to compromise its dignity and standing,—having always in view, however, the promotion of the primary and leading objects of its organization. I thank you for your attention to this brief recital of a few thoughts suggested by the occasion.

At the conclusion of his address, the President re-



quested Vice President D. B. HAGAR to officiate as master of ceremonies for the occasion, which he did in his usual graceful manner, and not only were his few opening remarks characterized by wit and pleasantry, but he introduced the various speakers with a very nice savoring of clever things that did much to make the stream of oratory run smoothly.

The Health of Gov. WASHBURN was proposed who responded as follows :—

MR. PRESIDENT, LADIES AND GENTLEMEN :—I am happy to meet you on this interesting occasion. Having been in your city but once during some twenty years, and then for only a few hours, I am to most of you an entire stranger. But your reception has made me feel that I am among friends, and I thank you for this opportunity of an acquaintance with those whom I have learned to honor, not only for their personal qualities, but for the good work in which they are engaged. Not to be somewhat conversant with the early history of Salem is to be ignorant of the history of the Commonwealth. Here was one of the first settlements of the colony of Massachusetts Bay. Hither came Endicott and Winthrop, names foremost among those of our colonial times. Here the former lived and died, and here are still found his direct descendants. Here Roger Williams lived and preached till the people, believing his doctrines injurious to the best interests of the community, compelled him to seek a locality more favorable to his peculiar tenets. This was the home of Story and others who have adorned our judiciary, and some of the most influential members of Congress and the national cabinet have resided here, while time would fail me to mention the names connected with this locality which are favorably known in literature. Neither can I

forget, for I have had it thrown in my face often during the last few years, that this is particularly the place where witches were hung. I know that unmeasured abuse has been heaped upon your ancestors for this fact. They were stern men in their judgments of evil and evil tendencies, and they had stern and swift methods of dealing with those whom they believed dangerous to society and religion. Unquestionably they erred in their treatment of the witchcraft delusions, but I confess to something of admiration for the spirit and moral courage which they displayed. I am aware, also, that for a long period yours was the chief commercial city of the State. While it has lost its position in this regard it is rapidly assuming the characteristics of a manufacturing community, and I trust it may see a thriving and prosperous future. The new and elegant structures which meet our glances on every hand, are tangible evidences of thrift pleasant to observe, and I am glad to notice that some edifices yet remain as monuments of the taste and skill of former generations. Mere outward, physical developments are not, however, what should most be valued in your city; it is of far more consequence that rare facilities have been and still are afforded for moral and intellectual growth and culture. This indeed is one of the marked peculiarities of our Commonwealth. We are not without internal improvements of which we may be justly proud; there are abundant witnesses of the energy and enterprise of our people—wharves and warehouses and manufacturing establishments of one kind and another. But these are not the things that have given Massachusetts its chief renown and standing before the world. Partially at least we owe our good name to the qualities which characterized our ancestors, and we shall find that this good name has departed from us when we have fallen

from public and private virtue. The true greatness of a community is in its moral worth. The desire to give our children a better education and better advantages in every respect than we ourselves were permitted to enjoy, to test and make the most of the intellectual and moral powers of every human being—this is an omen of the most encouraging promise. Jealous of each other, jealous of our neighbors, we may be; but what parent is there who is not anxious to secure for his children the privileges that will best fit them for life's duties? Intelligence, earnestness in the search for truth, desire for something purer and better—these are among the real signs of prosperity. That you have not been unmindful of this nobler good I find testified by what I see around me. The twenty-fifth anniversary, which we have assembled to-night to commemorate, is an indication that the improvement of the citizens of Essex has not been neglected. The happy and valuable influence of this society has been felt in every town of the county, and we may reasonably indulge the hope that it will continue to be felt for many long years to come. When I look upon its President, growing gray in his honorable work, and reflect that his power for good is not to be computed by figures, I cannot but wish that some way were devised for retaining the benefit of that power after the machinery which now propels it is worn out. You do wisely in preserving the records of his labor. He will pass away to the great company of those who have given your town its worthy name in our history, but the fruit of his endeavors will live and be perpetuated from generation to generation, not only in these beautiful records, but in the lives and labors of the thousands of young men and young women of Essex who are even now reaping the results of his work. They constitute the new machinery which will preserve and keep

in active use the powers we all honor so much to-day, and thus the years that are to come after we have gone to our reward will find him still a beneficent force in the community.

In response to a toast to the city of Salem, the Mayor, GEN. WM. COGSWELL, spoke as follows :—

I yield to no one in my sympathy with the aims and objects of this Institute, which to-night celebrates and completes its twenty-fifth year of existence. Though a passive rather than an active member of it, I have never failed to watch with interest its doings, and I can bear witness to its success; and to you, Mr. President, chiefly and above all others, is due the fact that we of a younger generation have seen the coming in, and do now see the going out, of the year which goes to make the first quarter of a century of its existence; and as some of these gentlemen about me will say that a man who has weathered the storms of twenty-five years of his life is more likely to live another equal term of years than one who has not reached that age, so I believe that this is but one of another and still another, and many more quarter centuries, of an institution dedicated to a higher education and better knowledge of the good old County of Essex.

I cannot refrain from saying again, that whatever measure of success, whatever of advancement, whatever of good, has so far been obtained, is, as it seems to me solely because of the devotion, industry and skill of one whose modesty on this, and on other occasions, is the best indication of the true worth of its possessor. Seldom, sir, is it given to man to see so much of the success of his own good works, as is given to you on this occasion, while it is never given to us to appreciate at their full value such works, until the hand, the heart, the brain which wrought

them out, has passed from among us — a day, in this case, which I pray for your own sake and for our sakes, may be long delayed. But the hour is late ; others you await. So far as the City of Salem is concerned, I would thank you for the courtesy you have extended to her on this occasion. She has always watched with pride and satisfaction the onward, upward course of the Essex Institute, an institution which she regards as one of her own, and as among her children ; and I feel that I can pledge you notwithstanding the small margin which allows me to speak for her at all, I feel that I can pledge you, certainly, with the consent of the gentleman opposite, the earnest coöperation and best wishes in the cause of science as advanced by the Essex Institute.

HON. MARSHALL P. WILDER was introduced as the President of the New England Historic-Genealogical Society, and as the President of the American Pomological Society. "*By their fruits ye shall know them.*"

MR. PRESIDENT:—You have called on me to respond for two institutions, and thus to do double duty while I am scarcely able to perform the service for one satisfactorily. But, sir, I am most happy to be here and to enjoy the privileges and pleasures of this most interesting occasion. Three years ago the New England Historic-Genealogical Society celebrated its twenty-fifth anniversary, when we were honored with your presence ; and I am here now to reciprocate that favor, to join heart and hand in this festival, and to assure you of our desire to coöperate with you in efforts to promote the welfare of your association. Most heartily do I congratulate you on the prosperity of your institution and upon the great good it has already accomplished for the world. It is not often that the founders of institutions live to reap the harvest



of their own sowing, but you, sir, have stood by the cradle of its infancy and have watched its growth and are now permitted to rejoice with us in its full manhood and extensive usefulness.

Your association, like our New England Society, is giving special attention to the preservation and transmission of New England's history to future generations, and it is indeed a grateful and noble service. "History," says a renowned author "is but the development of God's grand plan, to preserve the treasures of human thought, and to increase for countless generations the absolute wisdom of mankind." And what more benevolent and glorious work can we have than the preservation of the history of our own beloved New England! Time will not permit me to refer to the early history of the colonies, with which Salem was so intimately connected, or to those principles of piety, patriotism and philanthropy, which laid the foundations of our free institutions, which have made our nation what it is, and which we believe are yet to revolutionize and christianize the nations of this earth; suffice it to say, that in all that pertains to civil and religious liberty, in whatever relates to the great and benevolent enterprises of the age, Massachusetts has ever stood forth prominently as the champion of progress and principle. It would be pleasant, had we time, to revert to some of the great events and great men which characterize her history from the time when Endicott and Winthrop landed on your shores. I cannot refrain, however, from alluding to a few of her sons who have moved on the stage of life within the last hundred years, and whose names and deeds will gild the page of American history with an effulgence which will shine brighter and brighter unto the perfect day; to Hancock whose bold sign-manual was affixed first to the ever memorable Declaration of Independence; to Frank-

lin who drew the electric spark from the clouds and held it in his hand ; to Morse who trained it in the way it should go, and taught it to speak all the languages of the globe ; to Field who laid that mystic wire in the fathomless depths of old ocean from continent to continent ; to your own Peabody, whose munificent bequests are the praise of all people, whose remains were sent home under royal convoy, here to rest in the bosom of your own soil ; and to Ames, all honor to his name, to whose indomitable energy and perseverance, we are indebted more than to any other man, for opening up a grand highway for nations across this continent in all coming time.

You have alluded to me, sir, in connection with the great industrial pursuits of our country. I thank you for your recognition of the American Pomological Society, which is also to celebrate its twenty-fifth anniversary in Boston next September, when I hope we may be honored with a large delegation from your institution, and where you will be cordially received by its first president, although I hope he may not be its last. Nor would I forget how much we are indebted to Essex County, especially to Salem for the promotion of the agriculture and horticulture of our land. Here was planted by Gov. Endicott one of the first, if not the first nursery, and the first pear tree in New England of which we have any account, and I am happy to know that the old monumental tree still survives. Here were planted just fifty years ago the Pomological Gardens of Salem, in which still live many noble trees as grand memorials of the planter, Robert Manning, to whom Mr. President, you alluded in your opening remarks. To him and to his son of the same name, who resides on the old homestead, the Massachusetts Horticultural Society and the country are indebted largely for the services they have rendered to the cause of American Pomology. These

gardens at one time contained about two thousand varieties of fruits, and where Mr. Manning, the father, had actually proved under his own inspection, eighty varieties of American apples and sixty varieties of American pears, with many other fruits. But Governor Endicott, or Robert Manning, could not have anticipated the influence of their example in fruit culture, which has now spread throughout the land, nor the immense quantities of fruit sent from the western and Pacific states to our eastern shores ; nor the amount exported annually to Great Britain, there having been shipped in one vessel from Boston to Liverpool the last week more than two thousand barrels of apples. And now, sir, I desire to place on record the influence of the Essex Agricultural Society ; a society which for more than half a century has stood at the head of the agricultural societies of this state, maintaining its high position to the present time. There may it stand forever. Its first president was Timothy Pickering, who had also been secretary of the first agricultural society ever established on this continent, the Philadelphia Society for the Promotion of Agriculture. It has been my privilege to be acquainted, and to labor, with many of the presidents of the Essex society, down to the present incumbent, whose hand and heart are open to every good word and work, and I stand here to-day to acknowledge the great good which the cultivators of your county have conferred on the world. But Mr. President, I must bring these remarks to a close. I thank you for remembering me in connection with the cultivation of fruits and flowers. From my childhood I have loved the cultivation of the soil and the enjoyments which spring from rural life ; I am very fond of communing with nature, whether in her sublime or merry mood ; I love to hear the thunder roll its awful diapason through the skies ; I love to see the lightning flash

its fiery gleam from pole to pole, I love the blooming spring odorous with the fragrance of the garden and orchard, the summer landscape rich with the verdure of the forest and the field, the mellow autumn when nature pours from her overflowing lap the ripened treasures of the year. And I love to be remembered as one who has endeavored to do something for the improvement and embellishment of mother earth; something which shall contribute to the comfort and happiness of my fellow men; and may I not also add, in this presence, something which shall redound to the honor and benefit of our own New England; something which shall live when I am dead.

Prof. O. C. MARSH, of Yale College, being called upon, paid the high compliment to the Institute that through its influence the botany and zoology of Essex county were better understood than that of any other county in the United States. He spoke of the noble work the Institute had done in diffusing scientific knowledge over all parts of the country, and encouraging other societies designed to promote the same objects. It was at the hands of the Essex Institute that he himself acquired his taste for scientific investigations. He hoped that this was only the beginning of the usefulness of this society, and that we might all be present at its golden wedding, twenty-five years hence.

President J. D. RUNKLE, of the Massachusetts Institute of Technology, said his institution was merely following in the tracks of the Essex Institute—"we are making use of scientific knowledge by adapting it to the practical affairs of life."

Hon. GEORGE B. LORING, being called upon as President of the Massachusetts Senate, spoke as follows:—

MR. PRESIDENT :—I accepted your invitation to be present on this occasion so full of interest to the lovers of science and good learning, and to you especially, the founder and curator of this institution, with a firm conviction that in all this assembly I should be allowed to enjoy an "evening at home," and to listen to the remarks of the distinguished gentlemen from abroad who have come here to honor us by their presence and to encourage and edify us by their words. It was not until I was approached by the now existing president and toast-master of this occasion, with the question :—"What shall I set you off with this evening" (as if I were ready to be set off at any time and on any notice), that I realized that I should have any part to perform here. I am reluctant even now to respond ; but I suppose a double presidency must be obeyed, especially in an institution where the voice of a single leader and presiding officer has always been considered supreme. And so I follow the example set me and endeavor to obey also.

As a citizen of Salem, I feel under great obligations to you and your associates for furnishing us with this opportunity to learn how worthy of all admiration our community is. The achievements of Salem in time past have not been forgotten by the gentlemen who have preceded me. They have not forgotten the efforts made by our ancestors to contribute their share to the independence, prosperity, intelligence and elevation of the nation of which we form a part. It is pleasant to be reminded of this, and to realize from the testimony of those who have no personal interest in, and attachment to, this spot, how worthy of all admiration is that record of past service, which the Essex Institute is gathering together and preserving with so much industry and care. I am gratified to know that Salem is considerable of a place after all.



To us who are surrounded by all the blessings which our ancestors bestowed upon us, this fact has long been familiar. This institution, whose twenty-fifth anniversary we now celebrate, busy as it always is in keeping the history of this city and of Essex County fresh in the minds of the people, forms a part of a system of education, study and investigation, which attracted the earliest attention of our people. The establishment of institutions of learning occupied much of the thought of our ancestors; and we point with pride to the fact that not only to the common school but to the higher seminaries of learning, to the Lyceum, and to the Library, and the Historical Society, and the Scientific Association, did this city turn its attention in the very commencement of its prosperity, and when she was obliged to set an example to others, instead of finding an example ready at her hands to follow.

That this tendency to intellectual enterprise grew out of the more commonplace virtue of industry in material affairs, who can doubt? Our fathers were a busy race. They believed in labor, and a constant exercise of their faculties in every good work. They were true to that fine principle of society laid down in those admirable volumes, Sandford and Merton, which we prized so highly and read so constantly when books were few, and newspapers were weekly, where the call of Mr. Barlow upon his associates to join him in founding a colony is recorded. Even our first governor had an impulse in the direction of toil; and John Endicott exerted himself to plant the single pear tree which now bears his name, before he abandoned the fields of agriculture, and entered upon the harder service of statesmanship. I rejoice in the industry and vigor of those men who gave us a community, and whose precepts have not yet been forgotten

by the enterprising, and successful, and intelligent laborers in this vineyard which we have inherited. For the part which this institution has performed in the encouragement of scientific research, as one element of our busy civilization, this country ought always to be grateful. I value all the accomplishments of our people, their ingenuity and skill, their vigorous literature, their advancement in the business of common school education, their devotion to the cause of freedom, their material success, their intellectual accomplishment, their moral elevation which calls for honesty, and frowns on dishonesty, in public affairs. But I think I am more gratified with the bond they have created between themselves and other nationalities, by their progress in practical science, than by any other of their achievements. I am reminded here, that it was not the skill of the diplomatist which opened to the inquiring young American the great triumph of European engineering, but the reputation secured by a son of this town, a friend of this institution, Benjamin Peirce, the great explorer in the profoundest fields of mathematics. For this recognition, I am profoundly grateful; and I congratulate the young men who are giving their energies to the scientific association of the Essex Institute, on the position secured for them in these modern days, by the great leaders whom they follow through the field upon which they have entered.

I congratulate this city on the existence of the Institute, and I congratulate the founder of the Institute that his eyes behold this cheering and joyful anniversary.

NATHANIEL PAINE, Esq., President of the Worcester Natural History Society, returned thanks to the Essex Institute for its example, which had been a great benefit to the Worcester society, and tendered his warm congratulations on the attainment of this anniversary.

Rev. E. S. ATWOOD then read the following poem:—

"Poeta nascitur, non fit," they say,  
That is, you cannot make him, any way.  
His song bursts forth in sweet spontaneous swell,  
You cannot draw it from a stoned up well;  
No rude compulsion wakes the sleeping lyre  
To thrill with music through each golden wire.  
The sweet south wind with soft Æolian blows,  
Too light to crush the petals of the rose,  
Calls from the strings the rich, low breathed refrain,  
That flings the summer's music back again;  
But blustering Boreas, with his rude emprise,  
All to no purpose with his roughness tries.  
In vain his swaggering, and his furious calls,  
The frightened harp strings answer back in "squalls."  
When "must" and "shall" stand at the poet's back,  
And drive him on with many a lusty whack,  
What chance for any melody divine  
To voice itself in smoothly flowing line?  
The strident organ, to Italians dear,  
Is what the listeners are doomed to hear.  
'Tis not the best, nor what we like, 'tis true,  
But when the best is lacking, worse must do.  
We looked for Holmes, and Amesbury's bard to come,  
But Whittier's not, and Holmes remains at home.  
Were they but with us, how the gods we'd thank!  
Alas, they're not — Alphonso, turn the crank.

You've seen the country maid, new come to town,  
With quiet mien and simple homespun gown;  
No beauty's artifice she needs nor knows  
By which the parchment skin is turned to rose;  
The pearl of nature shines along her face,  
And real blushes add their wondrous grace.  
A modest blossom—every charm its own —  
All that delights the eye, not bought but grown.  
But soon the city's cunning tricks are learned,  
And honest nature out of doors is turned;  
And art comes in, to try with skilful hand  
To mend what fashion says is badly planned.  
What wondrous transformations then occur!  
Arabian Nights grow commonplace to her.  
The modiste's scissors and the fashion plate,  
In sweet conjunction work her "up to date."

Paris undoes the work of Paradise,  
 And views its mangling with admiring eyes;  
 Beflounced, bepenniered, and be— who dare tell?  
 The country maid blooms out a city belle.  
 Now home returned, how all the rustics stare,  
 What comments pass upon her gait and air,  
 What adjectives set forth her altered state!  
 All eyes are curious, and some flash with hate.  
 Can this be she, our little modest maid,  
 This gorgeous dame, so flauntingly arrayed?  
 This strange shaped mass of flounces and of fuss,  
 Whose wondrous outlines shock and startle us?  
 The mad creation of some crazy dream,  
 Such as inspires the art of Vinnie Ream.  
 “And still they gaze, and still their wonder grows,”  
 That one small dress can carry all those bows.

And some such change, perhaps, the world may deem  
 Has come across the spirit of *our* dream,  
 When the grave, staid and solemn Institute  
 Comes out in worldly style, in party suit,  
 Forsakes its search in Indian heaps of shell,  
 To test instead the mollusks of Cassell;  
 Studies crustacea in their salad state;  
 Puts Darwin's jelly in a china plate;  
 Leaves ornithology's hard terms untried,  
 Enamored with the partridge at its side;  
 Adopts a glacial theory in a trice,  
 Choosing 'twixt lemon and vanilla ice;  
 Plies knife and fork with scarce a moment's stay,  
 And on to grave conclusions eats its way.  
 “Is this?” “Is this?” cry people, horrified,  
 “Is this the Institute, the city's pride?  
 Are these the men that meet in yonder room,  
 And sit with faces wrapped in funeral gloom,  
 Scowling at bugs, and ferns and pickled fish,  
 That form the common Monday evening's dish?  
 Are these the calls of science, this the quest  
 Which men push on with such a wondrous zest?  
 Is this the way they burn the midnight oil,  
 And talk to-morrow of their heavy toil?  
 The secret's out; this jovial throng, to-night,  
 With merry laugh and boundless appetite,  
 Careless of isms and of theories deep,  
 Toying with viands that will murder sleep,

In reckless mood have let the truth slip out,  
 And told us what the Institute's about.  
 Its genealogies and dusty lore,  
 Its curious specimens of the days of yore,  
 Its dredging, delving, these are all a blind;  
 There's something very different behind.  
 Perhaps for gravity it *used* to strive,  
 It studies jollity at twenty-five."

So think the thoughtless, but the wiser sight  
 Sees other meaning in our mirth to night.  
 The hour of pleasure is the hour of rest,  
 That sends us back to work with keener zest.  
 So, when the factory bell, at evening time,  
 Rings out upon the air its welcome chime,  
 And, quick responsive to its clanging beat,  
 There comes the answer of a hundred feet,  
 The merry jest goes round, and cheerful word,  
 With happy laughter all the crowd is stirred.  
 Forgotten for a while the thunderous din  
 That roared and rattled in the workshop grim,  
 Tense nerves relax, gaunt want forgets its pain,  
 And childhood's dreams come drifting back again;  
 The breath of country fields, the garden's sweets,  
 Seem to sift through the smoke of city streets;  
 For one brief hour the present fades away,  
 While old time splendors glorify the day.  
 And then toil takes again its heavy load,  
 To travel on along the dusty road,  
 Renewed and gladdened by the restful change  
 That gave to hope and thought a wider range.  
 So here we stand to-night with bows unbent;  
 To-morrow sees us all on work intent.  
 And, as the mirthful moments fade away  
 Before the coming of the toilsome day,  
 The earnest future, glowing in their light,  
 Brightens before our cheered and quickened sight.

We look to-night a quarter century back,  
 And mark the lustre of the shining track  
 Left by the footsteps of illustrious sires,  
 Who kindled long ago these altar fires.  
 Amid the changes of a changing age  
*Decay's* not written on *our* history's page.



Empires have risen, tumbled to their fall,  
 The throne of power been shrouded with the pall.  
 Fortune's swift turning wheel brought various fate,  
 To mighty interests in church and state;  
 But, midst them all, secure against their shock,  
 The Institute, safe founded on a rock,  
 Withstands the tempest and the billows' rage,  
 And gives no sign of weakness or of age.  
 E'en here at home, what changing scenes and powers  
 Have marked the passage of those flying hours!  
 The cherished city of our love and pride,  
 Sitting so softly by the restless tide,  
 Keeps only memories of that earlier time  
 That brought the treasures of the Orient clime,  
 Its silks, and fragrant gums, and spices sweet,  
 To lay in willing tribute at her feet,  
 And, o'er the common labor of the day,  
 Throw the weird splendors of the far Cathay;  
 No more her ships come from the golden quest,  
 Fanned by rich gales from Araby the Blest,  
 And other works employ the busy hands,  
 That gather gold no more from India's Sands.  
 But naught of this disturbs *our* prosperous state,  
 Nor checks our progress, ever growing great;  
 Still! star-eyed Science, running to and fro,  
 Eager to find whatever man may know,  
 Hunting in upper and in nether world,  
 Mining in shell-heaps or through star-rack whirled,  
 Contented here pulls off her seven leagued boot,  
 And makes her home the ESSEX INSTITUTE.  
 See, at our hearthstone, how she sits, and sends  
 Her pupils forth to serve her various ends,—  
 Some to dig Indians, some the sea to dredge,  
 Some to filch treasures from the rocky ledge,  
 Some to hunt bugs and spear them with a pin,  
 As though bug-murder could not be a sin;  
 And when, returning home with various hap,  
 Their spoils they empty in her ample lap,  
 She looks them o'er, and sorting out, she sends  
 The second best to "corresponding" friends;  
 The first and rarest for *our* use she "mounts,"  
 To be of knowledge the perennial founts.  
 Nor this alone—for, lo! on happy nights,  
 'Midst breathless hush and half-extinguished lights,

Her magic screens with weird enchantments glow,  
 And things of beauty from above, below,  
 Snatched from the garden, gathered from the lea,  
 Brought from the hill-side, borrowed from the sea,  
 Lifted from nothingness to ample size,  
 Pass in review before our wondering eyes.  
 All lands come trooping with their tribute — meet  
 To lay in offering at their Mistress' feet;  
 From the far realms where endless winter reigns,  
 From tropic forests and from summer plains,  
 There comes some gift of leaf, or life, or flower,  
 To swell the wonders of th' enchanted hour;  
 Each form of marvel on this teeming earth,  
 The shaping crystal and the insect's birth,  
 The golden argosies that sail the air  
 And freights of life to waiting blossoms bear; —  
 Each comes, obedient to the Mistress' call,  
 And paints itself upon the canvas wall;  
 And over all, the magic work to crown,  
 The nimble ether of the skies comes down,  
 And subtile light waves, tortured for their name,  
 Write out their autographs in rainbow flame.

These are our claims, good friends, to love and praise,  
 For this to-night, each heart its homage pays,  
 For this the tables groan, and flowers' perfume  
 Beats out in waves of fragrance through the room.  
 Your presence cheers us; may its kindly power  
 Be felt for good in many a coming hour!  
 You've proved our *feasts*, now give our *fasts* a try,  
 They'll be nutritious, if a little dry,  
 And the old mother, gathering to her heart  
 More lusty children, take another start.  
 So will the century, rounding to the sphere,  
 See gain and growth with each completed year,  
 And to the glorious hundredth festival,  
 We bid with hearty welcome one and all.

STEPHEN M. ALLEN of Boston being called upon responded as follows :—

MR. PRESIDENT :—I know of no position more embarrassing to a lay member of a scientific society, who may

be expected to say something on an occasion like this, than to find himself surrounded by both natural and professional scientists, whose experience and wits have been sharpened to the highest point by the study and acquisition of all kinds of scientific knowledge. I think, sir, that we have a slim chance, in such an audience, of expressing ourselves so as to appear either easy or interesting. A professional man has the advantage, for if he ever finds himself embarrassed in speaking, either in public or private, he can at once retire under the umbrella of his specialty and escape from the effects of any passing shower of general criticism. Should he be a geologist, he has but to commence on ichthyolites, oolites, sienites and granites, and his listener will never attempt to storm his fortress. If he be a physician, he can do the same thing, only substituting the tibia, fibula, scapula and aorta. The chemist fares equally well in his defence, when diving into the great sea of oxygen, nitrogen, and sometimes hydrogen, with a profusion of alternatives of nitrates, sulphates and bi-sulphates ever ready; while the mathematician or the astronomer can at once successfully and defiantly flee to the realms of space, talking of revolving worlds, of spheres and hemispheres, of constellations and occultations; and if sometimes it reaches aberrations, his listener, through a want of technical knowledge, may not be the wiser. But it is not so with the layman. To be at all happy in his position, he must have seen and known much of many things; in fact, often it seems as though he was expected to have been everywhere and possessed himself of all knowledge, without which he is reckoned uncultivated and behind the times. He is expected perhaps to consider himself fortunate, if perchance sometimes he is needed as a flux or is honored as the slag of science. But, sir, your Institute is progressing

in the right direction. It is searching and reaching practical knowledge at every step, gathering with both gentle and strong hands the truths which belong especially to the present moment, as well as what was in the past and which must be in the great future. Your coöperators chosen from the gentler sex will prove beyond question, a tower of strength in aiding and sustaining the genius and integrity of your present success, as well as in perpetuating your future usefulness and glory. With the most hearty thanks for your invitation to be present to-night and the best wishes for your future prosperity, I will close with the following sentiment :—

The Scientist and Mechanic: May the former ever be as ready to loan the Umbrella of his Specialty to his lay-friends in a storm, as the latter is to make and present new ones, when the old shall have been worn out.

Able speeches were also made by the Hon. JOHN E. SANFORD, speaker of the Massachusetts House of Representatives, and by Rev. E. C. BOLLES of Salem, of which unfortunately no reports could be obtained.

#### SELECTIONS FROM LETTERS RECEIVED.

WORCESTER, Feb. 26, 1873.

*My Dear Sir:*

In behalf of the American Antiquarian Society and personally, I have the honor to thank the officers of the Essex Institute for the invitation to unite with them in celebrating the 25th anniversary of the organization of the Institute on the 5th of March next. But I regret to say that I cannot have the pleasure of attending. Yet I offer the cordial congratulations of the American Antiquarian Society that the Essex Institute, always respected as a leader in scientific inquiry, is now more rapidly growing in strength and usefulness.

Very respectfully yours,

STEPHEN SALISBURY.

*President of American Antiquarian Society*

DR. HENRY WHEATLAND, for the committee of the Essex Institute.

AMESBURY, 2nd 3rd Mo., 1873.

*Dear Friend:*

I fear it will not be in my power to be present at the celebration of the 25th anniversary of the Essex Institute at Salem on the evening of the 5th inst. As an Essex County man I always look upon the Institute as an honor to the county. Apart from its interest in a scientific point of view its festivals and excursions have exerted a very genial and social influence. Thanking the officers of the Institute for the invitation, I am very truly thy friend,

JOHN G. WHITTIER.

REV. E. S. ATWOOD.

BOSTON, March 1, 1873.

*My Dear Sir:*

I very deeply regret that an engagement, from which I cannot get clear, will prevent me from accepting your kind and cordial invitation to meet the members of the Essex Institute on the 5th of March. I regret it all the more because I think your Institute is doing important work in the advancement of knowledge. As an old Salem boy, I glory in everything which indicates the interest in science by matured Salem men. I cannot too warmly express my interest in your achievements and your plans. Salem, forever, is the feeling with which I sign myself,

Very sincerely yours,

E. P. WHIPPLE.

U. S. COAST SURVEY OFFICE, }  
Washington, March 4, 1873. }

*Dear Sir:*

But for the public duties which have claimed my attention here your invitation would have been gladly accepted.

Regretting that I cannot be with you at Plummer Hall to-morrow night, to join in the social reunion of the Essex Institute,

I remain, very truly yours,

BENJAMIN PEIRCE.

H. WHEATLAND, Salem, Mass.

RIVERDALE AVENUE, }  
New York, March 1, 1873. }

*My Dear Doctor Wheatland:*

I most heartily thank you for your kind invitation to attend the Institute anniversary next week. How much I regret that unavoidable duties here stand in the way of its acceptance, I need not say. You remember my deep interest in the objects and meetings of the Insti-



tute; and you can well understand that the occasion to which you invite me would prove most attractive. The presence and sight of your fellow laborer [Prof. Packard] in connection with the Institute, the other night, at the dinner at Delmonico's in honor of Tyndall, brought back to me delightful memories of the evenings when we used to gather at the rooms in the Plummer building, and Putnam, Morse, Cooke, Goodell, Emerton, Johnson, *et alios*, alas! Peabody, Huntington, Davis, possibly others gone hence, were choice spirits in our discussions. These are memories deeply cherished still; and I count it not the least among the privileges of my residence in old Salem, to have been associated with such as these, much more to my own advantage as was the connection, than it could have proved to my fellow members of the Institute.

I again thank you, my old friend, for your courtesy, and beg to express the wish that your celebration, in all its features of instruction and good fellowship, may prove all that you desire.

Believe me always, faithfully your friend,

GEORGE D. WILDES.

NEW HAVEN, CONN., FEB. 17, 1873.

*Dear Sir:*

I have to thank you, and through you, the Committee of Arrangements, for the kind invitation I have just received to a banquet on the evening of March 5th.

I should take the greatest pleasure in being present, if I could so arrange as to leave home at that time, but as I fear that will be impossible, I am obliged to forego the pleasure, and so gratefully decline the honor.

The continued prosperity of the Essex Institute is a matter of satisfaction to all the naturalists of the country, and it is to be hoped, and indeed expected, that its brilliant example will be followed in many parts of the land.

Anything that will show to our money-loving nation that there is a truer and higher expression of value than the sign of the dollar, \$, is a thing which will in the end advance the whole people in their ideas of essential and permanent usefulness.

Even the professional advocates of a purer and more unselfish practice of religion will always find a great gain to themselves and their cause from the careful study of Natural History, for only in this way can they learn how it is that all natural phenomena, "creeping things and flying fowl,—fruitful trees and all cedars" fulfil the design of the great Creator, and give back a clear and unmistakable response to the

Psalmist's invitation: "Bless the Lord, all his works, in all places of his dominion."

I am, with deep regret that I can not be with you,

Yours very truly,

DANIEL C. EATON.

D. B. Hagar, Esq., Member of Committee of Arrangements for the 25th Anniversary of Essex Institute.

BROOKLINE, Feb. 20, 1873.

*My Dear Sir:*

Yours of the 18th inst., has this moment reached me. It is full of temptation. It would give me real pleasure to be with the Essex Institute at their celebration, and to bear witness to their great success in the cause to which their labors are devoted.

But I am compelled to deny myself, and can only offer them my grateful acknowledgments of their kind invitation, with my cordial wishes for their continued success and prosperity.

Believe me, dear sir, with great regard, very faithfully yours,

ROBT. C. WINTHROP.

ABNER C. GOODELL, JR., Esq., Vice Pres't.

BOSTON, Feb. 28, 1873.

*My Dear Sir:*

Illness will deprive me of the pleasure of accepting your kind invitation to the 25th anniversary of the organization of the Essex Institute. I rejoice that Dr. Wheatland will witness it.

Glorious old Essex is rich in great names some of which yet wait, and can afford to wait, for historical justice. In the day when History shall supplement mere Annals, the portrait of Cutler, the minister of Hamilton, which now adorns the walls of the Institute as a man of local distinction, will, with that of Dane, the Beverly lawyer, be elevated to a chief place among our national portraits, and the names of Manasseh Cutler and Nathan Dane be as household words throughout the land for all time. Their joint work, the Ordinance of 1787, July 13—some months prior to the adoption of our present Constitution, is hardly second in importance to the Declaration of Independence. Except the Constitution it is perhaps the most important instrument among the fundamental acts of the country, for it established the principles of civil and religious liberty as the organic basis of all governments and laws in the northwest. It was "the cloud by day and the pillar of fire by night," warding off slavery and barbarism, and securing the primeval waste of forest and prairie of the northwest for the children of the north Atlantic states, who, like

their fathers, should demonstrate the capacity of man for self-government. It was this civilization that, when slavery, with the warm breath of old world despotism, was against us, gave us Lincoln's Proclamation of Emancipation; it blotted out slavery; it vindicated the Declaration of Independence; and saved the nation. Let the nations love and reverence the names of Cutler and Dane. They

“— heard the tread of pioneers  
Of nations yet to be;  
The first low wash of waves where soon  
Should roll a human sea.”

Yours, sincerely,

J. WINGATE THORNTON.

ABNER C. GOODELL, Esq., V. P., Chairman of the Com. of Arrangements.

The celebration as a whole must be considered as an eminent success. The evening was propitious, the arrangements well carried out in all their details, the speeches thoughtful and interesting, and no untoward incident marred the enjoyment of the festival from its beginning to the close. The occasion will long be remembered by those who were so fortunate as to be present, as a fitting celebration of the twenty-fifth anniversary of the Essex Institute.

# BULLETIN

OF THE

## ESSEX INSTITUTE.

---

VOL. 5. SALEM, MASS., APRIL AND MAY, 1873. NO. 4.

---

One Dollar a Year in Advance. 10 Cents a Single Copy.

---

REGULAR MEETING, MONDAY, APRIL 14, 1873.

Meeting this evening. The PRESIDENT in the chair.  
Records of preceding meeting read.

The SECRETARY announced the following correspondence :—

From Stephen M. Allen, Boston, March 27, 28; C. Alice Baker, Cambridge, April 6; Henry Barnard, Hartford, March 17; Oliver N. Bryan, Marshall Hall P. O., Ind., March 17; A. Crosby, Salem, April 10; S. C. Gould, Manchester, New Hampshire, March 24, 31; S. A. Green, Boston, March 29; George Haskell, Ipswich, April 8; D. Webster King, Boston, April 8, 10; G. B. Loring, Salem, April 3; A. A. Scott, Saugus Centre, April 8; James Usher, New York, March 17; Marshall P. Wilder, Boston, April 8; Charles V. Woerd, Waltham, April 10, 12; American College of Heraldry, New York, April 3; Bern, Die Naturforschende Gesellschaft; New York Genealogical and Biographical Society, New York, March 24, 29, April 5; Ohio Historical and Philosophical Society, Cincinnati, March 15.

THE LIBRARIAN reported the following additions :—

*By Donation.*

ALLEN, STEPHEN M., of Boston. Proceedings of the Laying of the Corner Stone of the Standish Monument on Captain's Hill, Duxbury, Oct. 7, 1872.

BUTLER, B. F., of U. S. House of Representatives. Bingham's Speech in the U. S. H. R., Feb. 26, 1873. Butler's Speech in U. S. H. R., Feb. 27, 1873.

CLEAVELAND, N., of Topsfield, Mass. Political Pamphlets, 2 vols., 8vo. Miscellaneous Sermons, 2 vols., 8vo. Religious Pamphlets, 2 vols., 8vo. Miscellany, 2 vols., 8vo. The Psalms of David, by I. Watts, 1 vol., 12mo, 1786. Massachusetts Register, 1809, 1 vol., 16mo. Psalms, 1 vol. 12mo.

GREEN, S. A., of Boston, Mass. Miscellaneous pamphlets, 11.

MASSACHUSETTS HORTICULTURAL SOCIETY. Transactions of, for 1872.

OSGOOD, ALFRED, of Newburyport, Mass. Annual Report of the School Committee of Newburyport for 1872. Report of the Directors of the Public Library of Newburyport, 1872.

PALFRAY, C. W. Miscellaneous pamphlets, 35.

POTTER, Rev. E. N., of Schenectady, New York. Proceedings at the Inauguration of the President of Union College, 1871-72.

THURSTON, C. MYRICK. Genealogy of the Thurstons and Pitmans of Rhode Island. 1 vol., 8vo. New York, 1865.

U. S. PATENT OFFICE of Washington, D. C. Official Gazette, March 4, 11, 18, 1873.

#### *By Exchange.*

ARCHIV FÜR ANTHROPOLOGIE, Band v, Heft iv, 1872.

BIBLIOTHEQUE UNIVERSELLE ET REVUE SUISSE. Archives des Sciences Physiques et Naturelles, Dec., 1872, Jan., 1873.

GEOLOGICAL SURVEY OF CANADA. Report of Progress for 1871-72.

NATURAL HISTORY SOCIETY OF MONTREAL. The Canadian Naturalist, Vol. vii, No. 1.

PHILADELPHIA ACADEMY OF NATURAL SCIENCES, Proceedings of the. Oct., Nov., Dec., 1872.

STATE HISTORICAL SOCIETY OF IOWA. The Annals of Iowa for January, 1873.

PUBLISHERS. American Naturalist. Essex County Mercury. Gloucester Telegraph. Haverhill Gazette. Ipswich Chronicle. Lawrence American. Lynn Reporter. Lynn Transcript. Medical and Surgical Reporter. Nation. Nature. Peabody Press. Quaritch's Catalogue. Sailors' Magazine and Seamen's Friend. Salem Observer. Silliman's Journal. Western Lancet.

Among the donations announced may be specified a Pocket Bible more than two hundred years old, from Miss MARY C. ANDERSON, and bearing the imprint of 1658. Not only is the title page illustrated with a nicely executed steel engraving quite creditable to the period, but the covers and gilt edges are ornamented with an elaborateness rarely equalled at the present day. The inscriptions show the transmission from one person and generation to another. From Mrs. Dolearne to Eliza Whetstone; from Eliza Whetstone to Peter Clarke; from the widow of Peter Clarke, in 1805, to John Jones Gascoigne Clarke; from the latter's administrator to Deborah Fairfax An-



derson, Aug. 9, 1838, and from the latter at her death, March 23, 1841, to her daughter, Mary Clarke Anderson.

From NEHEMIAH CLEAVELAND, Esq., of Topsfield, an ancient stand for a christening basin. It is made of iron, of a rather rude style of construction, and was found under the pulpit when the third Topsfield meeting-house was taken down. It was no doubt used in the second meeting-house built in 1703, and may have belonged to the first house.

From Mr. OLIVER N. BRYAN, of Marshall Hall P. O., Maryland, some relics of the tomb of Mrs. Deborah Fairfax, situated upon the banks of the Potomac, in a most lovely spot, a beautiful grove composed chiefly of white oaks, elevated above the river about fifty feet, commanding a beautiful view down seven and up five miles, overlooking a large portion of Prince George and Charles Counties, Maryland. Mrs. Deborah Fairfax was the daughter of Francis and Deborah (Gedney) Clarke of Salem, and was living in the house on the corner of Essex and North streets, on the site of which now stands the Shepard Block, when William Fairfax came to Salem as collector of the port, with his family, and lived in the house on the corner of Cambridge and Essex streets, taken down the past season to erect on its site a more eligible mansion.\* The wife of Mr. Fairfax died in 1731; he afterwards married Miss Clarke and in 1734 removed to Virginia by invitation of his cousin Thomas, the sixth Lord Fairfax, to be the superintendent of the estates that had lately come into his possession through his mother, who was Catherine, daughter of Lord Culpepper.

From Miss EUNICE RICHARDSON, specimens of old continental currency.

---

\*See Bulletin of Institute, Vol. iv, p. 62.

Dr. A. S. PACKARD, Jr., exhibited a large series of photographs of scenery in Colorado and Montana Territories taken by Mr. A. H. Jackson, under the auspices of the United States Geological Survey of the Territories, Dr. F. V. Hayden geologist. They were in two sets, and comprised some of the finest views in the National Yellowstone Park and Colorado Territory. From them one could obtain a very clear idea of the Geyser region which has been studied and mapped out by the Survey; of the springs in course of eruption, and of the falls and basin of the Yellowstone. He gave an account of the supposed origin of these extensive hot springs of which several thousand are supposed to exist. He also alluded to the value and interest of the discoveries made by Dr. Hayden in the west for a period of nearly fifteen years.

#### STONE KNIVES.

Mr. F. W. PUTNAM occupied the greater portion of the evening with an account of the various forms of cutting instruments made of stone, and classed by archaeologists under the general head of knives. A large number of specimens were exhibited, showing the different forms so far as they were represented by specimens in the Museum of the Peabody Academy of Science.

Knives or cutting instruments of various shapes and degrees of perfection have been found in more or less abundance in all parts of the world where stone implements have been collected and studied. Many of these cutting implements are simple flakes of flint or other stone; in fact any stone with a sharpened edge attained either by chipping or grinding, and of such a form as to show that it was not intended for use as a skin scraper, dagger, spearhead, arrowhead, small axe, or other similar implement, is classed under the head of knives; but while

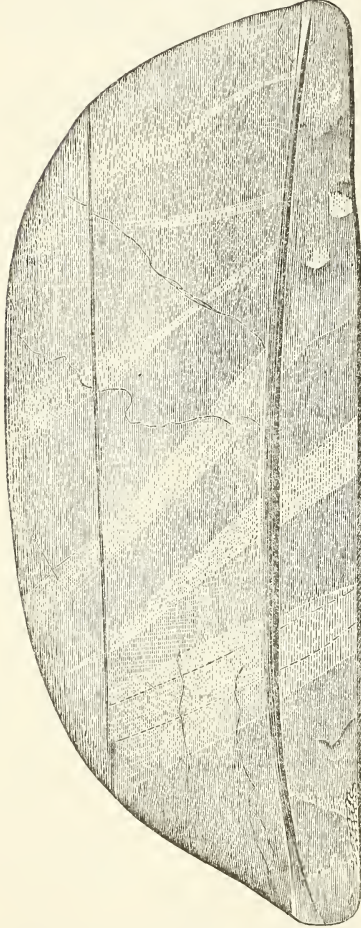
various stones, in many cases showing hardly any work upon them with the exception of providing a cutting edge, are thus brought into the group, it must not be taken for granted that all the stone knives of the pre-historic races were of this rude character.

Many beautiful cutting implements have been found in various countries, especially in North America. Schoolcraft, in his extended work on the Indian tribes, figures several fine specimens, notably the one represented on plate 45, figures 1 to 3 (vol. ii), found at Hartford, Washington County, N. Y., which he states to be carved from a piece of green serpentine. This knife is somewhat sickle shaped, five and three-quarters inches long, with a curved triangular blade descending from a well formed rounded handle. Schoolcraft also figures (vol. ii, pl. 49, fig. 4) a cutting implement with a blade five and three-quarters inches long by an inch in width. The figure shows a thickened portion answering for a back or handle. This specimen was found in Genesee Co., N. Y. The drawing is, however, very poorly executed and the description is so brief as to leave us in doubt as to the exact character of the implement. The specimen figured on his plate 50, figures 5 and 6 (vol. ii), under the title of "fragment of a blade of a battle-axe," and described as made of silicious slate, is far too thin and fragile an implement for a battle-axe, and is more likely another form of slate knife, perhaps having two symmetrical blades, through the centre of which (the figure shows a broken groove, which may represent a hole drilled through the centre of the blades) a wooden handle was inserted.

Squier and Davis in their work on the "Ancient Monuments of the Mississippi Valley," comprising the first of the splendid series of monuments in honor to James Smithson, under the title of the "Smithsonian Contribu-

tions to Knowledge," p. 216, give a small woodcut of a semilunar shaped knife, which they state is a form "occasionally found in the Eastern states. They are sometimes composed of slate, and are of various sizes, often measuring five or six inches in length. They are well adapted for flaying animals, and other analogous purposes." Their figure represents a knife of the same shape as the one here engraved (Fig. 1).

Fig. 1.



Knife from Salem, made of gray slate with dark and red veins and mottlings. Full size.

Of these semilunar shaped knives I have seen quite a number of specimens in various collections, but thus far all, as stated by Squier and Davis, have been from the Eastern states. In the Peabody Museum of Archaeology, at Cambridge, there are several of this form, one of which is about eight inches long and is labelled "Paring Knife. Amoskeag Falls, 1795." Two other knives

of this shape are in the Abbott Collection of the Peabody Academy of Science. These were found near Trenton, New Jersey, and by the kindness of Dr. Abbott I am able to use the woodcut

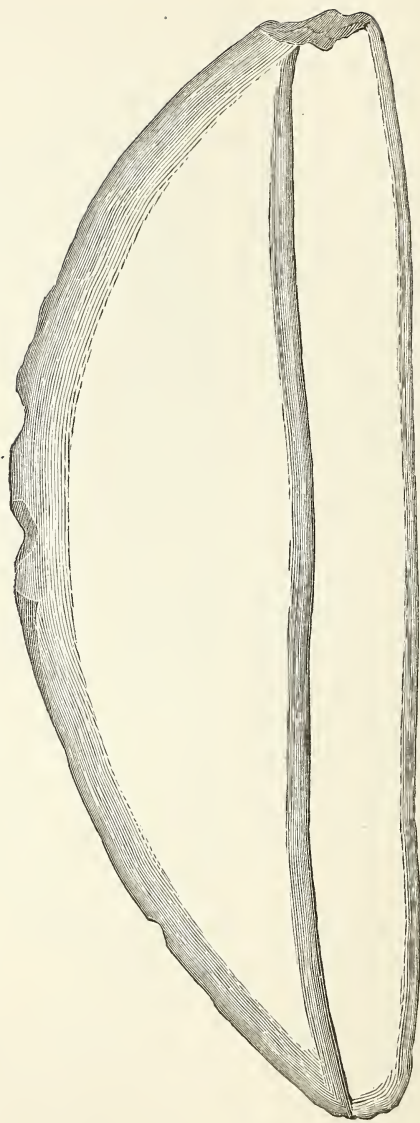


representing one of them (fig. 2) in advance of its appearance in his work on the "Stone Age in New Jersey," for the purpose of showing its great resemblance to the specimens from Essex County, of which there are two in the Academy Museum. The one represented here as figure 1 is the more beautifully finished and perfect of the two. It was found in Salem and placed in the Museum of the East India Marine Society. It is not quite five inches in length and is a little less than two inches in greatest depth of blade and back. The back is about half an inch in depth and a little over a quarter of an inch in width at the centre; narrowing at the ends; perfectly flat above. The blade is one-fifth of an inch thick along the under side of the thick back; it is gradually thinned out to the cutting edge all round, which is only one-tenth of an inch thick about one-fifth of an inch from its outer margin, which is evenly and nicely brought to a sharp cutting edge. The engraving shows the shape of the knife better than words will describe it. It will be noticed that the blade is slightly more pointed at one extreme than at the other. The material is a gray slate having several fine veins of a harder substance (quartz?) as shown in the engraving; it is quite ornamented with several dark wavy lines, light streaks and bands, and a number of irregular wavy lines of a red mineral running in all directions over the surface, but not indicated in the engraving.

Another specimen, also received by the Academy from the East India Marine Society Museum, was found on the farm in Danvers formerly owned by Governor Endicott. This specimen consists of about one-half of the knife, and was evidently, when perfect, about six inches long and two and a quarter deep. It was made of a slate very much like the Salem specimen, but without the dark and red veins and mottlings.



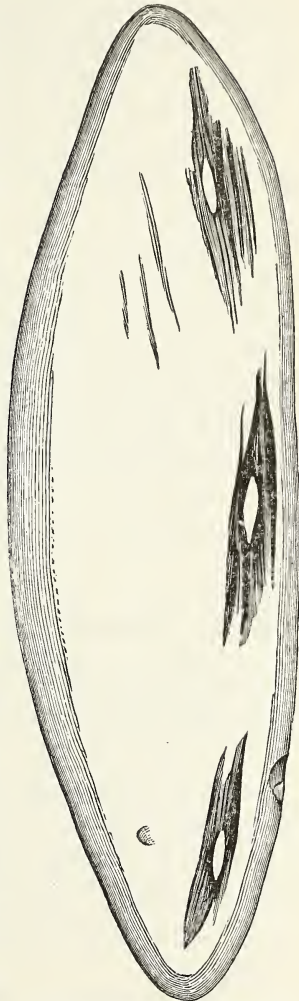
Fig. 2.



Knife made of light clay slate from Trenton, New Jersey. Full size.

Among the many interesting specimens secured for the Museum of the Academy, by Mr. John H. Sears, is a knife of dark talcose slate which is unlike any other that I have seen. The specimen is represented as figure 3. It was found near the church in Putnamville (Danvers) and is thus of marked interest to us as a relic from Essex County. It is slightly over five inches in length, and about one and one-half inches in depth at its centre. It is worked to a rounded point at each end, as shown by the engraving, and the smooth cutting edge is from point to point. The greatest thickness of the blade is one-fifth of an inch. The back of the knife is ground off to quite a thin edge, but evidently was never sharpened to form a cutting edge, though the back is so thin as to render its being held in the hand an uncomfortable matter while using the knife in this way, and the three holes that have been rudely cut, apparently by scraping backwards and forwards with a pointed stone, on both sides, until a hole was made, are evidence that the knife was mounted on a handle by passing bands through the holes and around the handle,

Fig. 3.



Knife made of dark talcose slate, from Putnamville. Full size.

which was probably grooved along its under side to fit over the sharp back of the knife. In common with the other slate knives, this specimen was finished with care and is perfectly smooth and well sharpened along its cutting edge.

Evans, in his instructive work on the "Ancient Stone Implements of Great Britain," mentions (p. 311) that in some Esquimaux knives the blade is tied to a wooden back by a cord which *passes through a hole in the blade*.

It would thus seem that our New England Indians, for to them I think we must look as the makers and owners of the knives I have specially described, were not satisfied with using simple flakes of stone and broken arrow and spear heads for knives, but that with them as with us to-day there were many, and often elaborate, styles of this most useful implement, and who can say that to possess a good knife was not as much the ambition of the men of the departed race as it is with those who have succeeded them?

Messrs. Charles D. Styles, John H. Derby, George F. Breed, Samuel Edson Cassino and Matthew Robson, all of Salem, and John G. Barker of Lynn, were duly elected resident members.

A committee, consisting of Messrs. John Robinson, James Kimball, E. S. Atwood and Caleb Cooke, was appointed to nominate officers to be balloted for at the annual meeting. The president and secretary were afterwards added to the committee.

Adjourned.

## REGULAR MEETING, MONDAY, MAY 5, 1873.

Meeting this evening at 7.30 o'clock. The PRESIDENT in the chair. In the absence of the SECRETARY, Dr. WILLIAM NEILSON was requested to act. Records of preceding meeting read.

The SECRETARY announced the following correspondence :—

From Stephen M. Allen, Boston, April 22; Jacob Batchelder, Lynn, April 29; T. T. Bouvé, Boston, March 21; S. P. Boynton, Lynn, April 29, May 1; George Derby, Boston, April 29; Samuel A. Drake, Boston, April 19; James H. Emerton, Boston, March 14; J. C. Holmes, Detroit, Mich., April 12; E. Rupert, Boston, April 26; William H. Rush, Chelsea, April 23; Henry Saltonstall, Boston, April 14; N. Vickary, Lynn, April 30; Charles V. Woerd, Waltham, April 18; William H. Yeomans, Columbia, Conn., May 3; American Antiquarian Society, April 26; American Geographical Society, April 30; Basel, Naturforschende Gesellschaft, August 12, 1872; Boston Public Library, April 23; Buffalo Society of Natural Sciences, April 17; Chicago Public Library, April 23; New Jersey Historical Society, April 21; New York Lyceum of Natural History, April 22; University of Wisconsin, Madison, April 30.

Mr. JOHN ROBINSON gave an account of the floral progress of the year, noticing the period of the opening of the flowers of several of the native plants and comparing the same with that of previous seasons.

He mentioned the finding, by Mr. C. E. Faxon of Cambridge, of a fern (*Aspidium munitum*), hitherto unknown in the United States, but known in the West India islands and other parts of the tropics; also that *Asplenium ebenoides*, only found in Philadelphia some years since, had been noticed in Alabama, growing with *Asplenium eben-eum* and *Camptosorus* as at the Philadelphia locality, thereby adding to the weight of the theory that it was a hybrid between the latter two.

He also said that, without doubt, if thorough search be made at the south, many plants not known in our flora would be found, many difficulties having prevented the

tourist and scientist from visiting that region at the proper season of the year to collect the best specimens.

Rev. E. C. BOLLES mentioned the occurrence at Swampscott, on the Stetson farm, very near the railroad, of one of the most beautiful of the microscopic Algæ, the *Batrachospermum moniliforme*. This plant requires very pure running water; and it closely invests the stones in little streams, moving its clusters of soft green threads very gracefully with the flowing of the brook. Under a lens each filament is seen to consist of a central thread, around which, at regular intervals, are whorls of other threads at right angles to the first, so that the whole appears like minute circular brushes, similar to those used for cleaning the flues of a chimney and strung like beads some distance apart. The threads are necklaces of globular cells, and the spores are to be found in a cluster near the centre of each whorl. These plants are with difficulty preserved, as they change color and cease to exhibit this peculiar arrangement when pressed on paper. They are usually put up for the microscope in glycerine jelly.

Mr. F. W. PUTNAM mentioned having noticed the appearance on April 3rd, of the common or white-bellied swallow, *Tachycineta bicolor*.

Charles A. Carlton of Salem was elected a resident member.

Adjourned.



# BULLETIN

OF THE

## ESSEX INSTITUTE.

---

VOL. 5.                      SALEM, MASS., MAY, 1873.                      No. 5.

One Dollar a Year in Advance. 10 Cents a Single Copy.

---

ANNUAL MEETING, WEDNESDAY, MAY 14, 1873.

According to the notification, the meeting was held at 3 P. M. The PRESIDENT in the chair. Records read.

The annual reports of the officers and of the curators were read and accepted, and from them the accompanying

### RETROSPECT OF THE YEAR,

exhibiting a satisfactory condition of affairs and the progress made, during the interval, in the promotion of the objects of the institution, has been compiled.

MEMBERS.—Changes occur in the list of associates by the addition of new names, and the withdrawal of some by resignation, removal from the county, or by death. In this connection, notices of nine of the resident members, who have deceased within the year, are inserted.

*B. R. Allen.* Scarcely had two or three weeks elapsed,

after our last annual gathering, ere the First Congregational Church in Marblehead was called to part with a beloved minister, Rev. B. R. Allen. He was born in Newport, Rhode Island, June 2, 1805, ordained in Marblehead in 1854 and since that time has resided in that town highly esteemed and revered. He joined the Institute several years since, has attended some of its meetings and was interested in its objects. He died June 2, 1872.

*Henry Curwen*, son of Samuel R. and Mary L. (Holman) Curwen, died July 13, 1872, aged 25; he early associated himself with the Institute. His duties as a clerk in one of our large business houses precluded him from being a very active member.

*Brown Emerson*. On Thursday evening, July 25, 1872, the South church in this city lost by death the aged and venerable senior Pastor, Rev. Brown Emerson, D. D., who had been connected with them in this holy bond of brotherhood for more than two-thirds of a century. He was the son of John and Catherine (Eaton) Emerson and was born at Ashby in this state January 8, 1778; graduated at Dartmouth College in 1802, and was ordained April 24, 1805, as colleague with the Rev. Daniel Hopkins, D.D., whose daughter Mary he married Oct. 29, 1806, a lady of uncommonly excellent traits of character, who survived until April 4, 1866, sustaining the happiest married relations for a period of nearly sixty years. Dr. Emerson was a person of noble presence, tall, erect, and of fine proportions, courteous and genial in his manners. His patriarchal appearance in his later years will long be remembered.

*William S. Cook*, son of John and Eliza A. (Leighton) Cook, died December 7, 1872, aged 28.

*William Silver*, son of James and Susan (Howard) Silver, died at Salem, January 16, 1873, aged 64. In

early life a master mariner ; afterwards a merchant. By his death, Salem loses another link in the chain which connects it with that period in its history when the sails of its merchantmen whitened every sea, and its merchants were known throughout the commercial world. He retired from all his trusts successful and with a proud record, and as a citizen was widely known and respected.

*Henry C. Perkins.* On Saturday, February 2, 1873, our neighboring city of Newburyport was pained by the announcement of the sudden decease of one of her most eminent physicians, Henry C. Perkins, M. D.; he was the son of the late Thomas Perkins and was born in that place, Nov. 13, 1804; graduated at Harvard college in 1824, and after the usual medical tuition located in the place of his birth and resided there until his decease, devoting the leisure he was enabled to obtain from an extensive and successful practice to scientific investigations, in which he took much pleasure and was an ardent and zealous worker. Rev. Dr. Spalding of Newburyport has kindly consented to prepare a memorial to be read at some future meeting with a view to its publication in the "Historical Collections."

*Abraham F. Bosson*, of Salem, died February 21, 1873, aged 61; a son of Thaddeus and Abigail (Fowler) Bosson. His interest in the Institute centred in the horticultural department; he was a very zealous and devoted cultivator of the choicest flowers and fruit and liberally contributed to the horticultural exhibitions given under the auspices of the Institute.

*John Chapman*, the senior editor of the Salem Register, died on Saturday, April 19, 1873, having been able to perform his usual duties in the office until within a few weeks of his decease, when he was stricken by a disease which soon proved fatal. He was son of John and Ruth

(Henfield) Chapman and was born in this city, Sept. 4, 1793, and was consequently on the verge of fourscore. He entered the office of the Register in 1807, having been engaged in the duties of a printer, nearly as many years as his venerated pastor, who died a few months previous, had occupied the pulpit of the South church in this city. Having held many offices of trust and being much in public life, few citizens were so generally known or will be so much missed.

*Timothy Ropes* died April 25, 1873, aged 75; son of Timothy and Sarah (Holmes) Ropes. In early life he made several voyages to India; afterwards became a dealer in crockery and hardware. He was very fond of horticultural pursuits and was a constant contributor of flowers and fruit to the horticultural exhibitions, especially to those held some twenty or thirty years since.

MEETINGS.—Three field meetings have been held during the season; first, at Middleton, June 12, 1872, by invitation of Mr. Simon F. Esty, who tendered the use of his grounds on the border of "Forest Lake," formerly known as the Great Pond, as the place of rendezvous for the day. At the meeting in the church, remarks were made and resolutions passed to the memory of Dr. Wm. Stimpson; Mr. David Stiles presented some historical notices of Middleton; D. J. Tapley of Danvers exhibited a curious Indian relic found by Mr. Seneca Ladd of Meredith village, New Hampshire; Mr. James H. Emerton spoke on spiders; Rev. E. C. Bolles on Microscopic Fungi—also Mr. F. W. Putnam, Dr. A. H. Johnson, A. C. Goodell, Jr., Esq., Rev. Mr. Frary and others, made appropriate remarks suggested by the occasion.

The second meeting at Groveland, July 16, 1872, by invitation of Dr. Jeremiah Spofford. An object of

special interest was the new iron bridge connecting the town with Haverhill. The new academy building, which was the rendezvous of the day, is also deserving of honorable mention. It was recently built, (mainly through the efforts of Dr. Spofford), on the site of the former building destroyed by fire a few years since. At the meeting Dr. Spofford gave a very interesting sketch of the history of the academy; Prof. E. S. Morse spoke on the "Frog Spittle" *Ptyelus lineatus*, and described the habits of this curious insect; James H. Emerton mentioned several cases of protective colors and habits in spiders which he had seen during the morning walk; Messrs. Abner J. Phipps, agent of the State Board of Education, D. B. Hagar of the State Normal School, Salem, S. C. Beane, E. C. Bolles, LeRoy F. Griffin and others, made interesting remarks.

The third, at Annisquam, on Thursday, Aug. 8, 1872. The pleasant summer's day so congenial and appropriate for a visit to the seashore induced many to accompany the Institute on this excursion to the rock-bound coast of Cape Ann. In the afternoon F. W. Putnam spoke of the shell heaps which he had visited; also gave an account of the development of the skate's egg, the cases which contained the embryo being frequently found cast upon the beaches; Rev. W. E. Coffin of Orange, formerly a pastor of this church, and J. J. Babson, gave interesting historical sketches of this parish; remarks were made by Messrs. A. W. Dodge, L. J. Livermore, James Davis, C. E. Barnes, Addison Davis, and others.

*Evening meetings* have been held at the rooms, usually on the first and third Monday evenings of each month except on those in June, July, August and September. At these meetings many valuable communications have been



presented, and abstracts have been printed in the BULLETIN or reserved for the "Historical Collections;" John Robinson, on our early native plants, with a floral calendar kept by one of our young and enthusiastic collectors, noting the blooming of some of the spring flowers for several years past; also a paper on ferneries, how to make them and what to put in them; George H. Devereux, on the origin of surnames; a catalogue of the mammals of Florida by C. J. Maynard, with notes on their habits, distribution, etc.; A. S. Packard, an account of recent explorations of St. George's Bank in the U. S. C. S. Steamer Bache; on the glacial phenomena of northeastern America compared with those of Europe; F. W. Putnam, on ancient Indian carving; E. S. Atwood gave an account and read extracts from a journal, of a journey to Philadelphia by the late Rev. B. Emerson, some fifty years since; James H. Emerton, on worms of the genus *Nais*; Stephen M. Allen, on the ancient and modern theories of light, heat and color; Harold Herrick of New York, a partial catalogue of the birds of Grand Menan.

In this connection it may be deemed appropriate to allude briefly to the meeting, March 5, 1873, commemorative of the twenty-fifth anniversary of the organization of the Institute. On this occasion were present His Excellency the Governor, the President of the Senate, the Speaker of the House, and many other distinguished persons.

LECTURES.—On Wednesday evening, Oct. 16, 1872, Rev. E. C. Bolles commenced a series of eight lectures in Mechanic Hall, Salem, entitled "Eight evenings with the Microscope," and continued on successive Wednesday evenings, except the seventh on Tuesday, Dec. 2, and the eighth on Tuesday, Dec. 9. Mr. Bolles also delivered a

lecture before the Peabody Institute in Danvers, one before the Newburyport Lyceum, a course of six lectures in March and April in Odd Fellows Hall, Lynn, and a supplementary on Monday, May 12. A course of five lectures is in course of delivery in Danvers, having begun on Thursday, April 17. The subjects of the above lectures were selected from those delivered in Salem during the past autumn. A course of familiar lectures on microscopical studies commenced in the rooms of the Institute on Monday, April 21, the second on Wednesday, April 30, and the others on successive Wednesday evenings. The above lectures,\* which were under the direction of the Institute, were popular and instructive descriptions of the history and construction of the Microscope; and included exhibitions of specimens in the various fields of nature, illustrating by aid of the calcium light the discoveries which the microscope has made. Mr. E. Bicknell assisted Mr. Bolles in the illustrations and managed the lantern.

**CONCERTS.**—Five concerts have been given by members and friends of the Institute on Thursday evenings commencing with Thursday, March 27, 1873. They were very successful and gave much pleasure and gratification not only to those interested in this pursuit, but to others. To Mr. Charles H. Higbee, for his untiring and assiduous exertions in the attainment of a favorable result, the Institute is greatly indebted.

**MUSEUM.**—Many valuable specimens have been given during the year; those relating to Natural History, in accordance with previous arrangements, have been deposited with the Trustees of the Peabody Academy of Science; and of the collection in the custody of the trustees it is

---

\* See BULLETIN, Vol. iv, p. 46.

only necessary to say that the same care is bestowed upon our specimens as is upon their own. Those of an historical character are in the immediate care of the Institute, consisting chiefly of curiosities, relics and early Essex County household chattels. It is desirable that a more systematic arrangement be made, and the curators of that department are requested to consider the propriety of having the same done, at an early date, in an interesting and attractive manner. The visitors to inspect the old frame of the first building for the First Church increase every year.

LIBRARY.—The additions during the year have been as follows :—

<i>Donations.</i>			
Folios, . . . . .	15	Pamphlets and Serials, . . . .	5,834
Quartos, . . . . .	30	Almanacs, . . . . .	57
Octavos, . . . . .	412		—
Duodecimos, . . . . .	59	Total, . . . . .	5,891
Sexdecimos, . . . . .	36	Total of bound volumes, . . .	552
	—		—
Total, . . . . .	552	Total of Donations, . . . .	6,443

<i>Exchanges.</i>			
Quartos, . . . . .	16	Pamphlets and Serials, . . . .	1071
Octavos, . . . . .	61	Total of bound volumes, . . .	80
Duodecimos, . . . . .	3		—
	—	Total of Exchanges, . . . .	1151
Total, . . . . .	80	Total of Donations, . . . .	6443
			—
		Total, . . . . .	7594

Of the total number of pamphlets and serials 2,515 were pamphlets, and 4,390 serials.

The donations to the Library for the year have been received from one hundred and twelve individuals and fifteen societies and public bodies.

The exchanges have been received from ninety-one societies and incorporated bodies, of which sixty-eight are foreign.

From the editors of the "American Naturalist" one hundred and thirty-seven serial publications.

FINANCIAL.—The Treasurer's Report shows an increase in the annual income, yet additional means are requisite to enable the Institute to perform in a fitting manner the various duties which the community may reasonably expect.

## DEBITS.

Athenæum for rent and Librarian, . . . . .	\$350.00
Salaries, \$876.88; Coal, \$140.00, . . . . .	1016.88
Postage and Express, \$15.47; Sundries, \$19.20, . . . . .	94.67
Lectures (Bolles), \$1251.66; Collecting, \$5.75, . . . . .	1257.41
Gas, \$32.40; Goldthwaite and Day, \$118.84, . . . . .	151.24
Insurance, \$40.00; Publications, \$2200.00, . . . . .	2240.00
To balance, . . . . .	202.42

*Historical.*

G. Southward, \$10.00; J. Perley, \$86; Books, \$7.00, . . . . .	103.00
--	--------

*Natural History and Horticulture.*

J. Perley, \$25.00; C. A. Walker, \$3.50, . . . . .	28.50
	<u>\$5,444.12</u>

## CREDITS.

Dividends Webster Bank, 40.00; Lectures, 1214.57, . . . . .	\$1254.57
Notes and interest, . . . . .	1586.51
Sundries, . . . . .	87.38
Athenæum, proportion of coal, janitor, etc., . . . . .	145.00
Assessments, \$1,200; Publications, \$617.18, . . . . .	1817.18
Balance of last year, . . . . .	2.48

*Historical.*

Dividends Naumkeag Bank, \$24.00; Michigan Central R. R., \$47, . . . . .	71.00
---	-------

*Natural History and Horticulture.*

Dividends Lowell Bleachery, \$80.00; P. S. & P. R. R., \$20, . . . . .	100.00
--	--------

*Davis Fund.*

Coupons Dixon, Peoria and Hannibal R. R. Bonds, . . . . .	240.00
Coupons Burlington and Missouri River R. R. Bonds, . . . . .	140.00
	<u>\$5,444.12</u>

PUBLICATIONS.—The BULLETIN has been continued in monthly numbers, giving full reports of the doings of the Institute and abstracts of papers read at the meetings;

this makes an annual volume of some one hundred and sixty pages. Vol. xi, Nos. 2, 3 and 4, of the "Historical Collections," have been printed completing vol. xi.

The SECRETARY announced the following correspondence :—

From Buffalo Society of Natural Sciences, May 12; Buffalo Historical Society, May 10; New York Lyceum of Natural History, May 12.

Also the following letter from Dr. A. H. Johnson was read :—

SALEM, May 14, 1873.

The undersigned regrets that while holding the position of Secretary of the Institute during the past year, he has been able to give but little attention to the duties of the office, which have consequently devolved almost entirely upon its President.

The irregularities connected with the medical profession are incompatible with that regular performance of clerical labor, and punctual attendance upon meetings, which the office properly demands. Therefore, unwilling longer to hold an office whose duties must be left to others to perform; grateful for the kind consideration shown to him during his exceedingly imperfect, although never wilfully neglectful, service; with no abatement of interest in the Institute and its objects, but with the hope to serve it better in some other way, he hereby resigns the office of Home and Recording Secretary of the Essex Institute.

Respectfully submitted,

A. H. JOHNSON.

#### OFFICERS ELECTED

for the year ensuing and until others shall be chosen in their stead :—

*President.*

HENRY WHEATLAND.

*Vice Presidents.*

*Of History* — A. C. GOODELL, JR. *Of Horticulture* — WILLIAM SUTTON.

*Of the Arts* — D. B. HAGAR. *Of Natural History* — F. W. PUTNAM.

*Recording and Home Secretary.*

JOHN ROBINSON.



*Foreign Secretary.*

A. S. PACKARD, JR.

*Treasurer.*

HENRY WHEATLAND.

*Librarian.*

WILLIAM P. UPHAM.

*Superintendent of the Museum.*

CALEB COOKE.

*Curators of Historical Department.*

W. P. Upham, M. A. Stickney, John Robinson.

*Curators of Natural History Department.*

H. F. King, G. A. Perkins, William Neilson.

*Curators of Horticultural Department.*

Caleb Cooke, John Robinson, H. W. Putnam.

*Curators of Department of the Arts.*

C. H. Higbee, Jas. A. Gillis, Geo. M. Whipple.

*Lecture Committee.*

Jas. Kimball, Geo. Perkins, Wm. Northey, E. C. Bolles, Joshua Coit, A. H. Johnson.

*Finance Committee.*

John C. Lee, Richard S. Rogers, Jas. Upton, Geo. D. Phippen.

*Field Meeting Committee.*

A. W. Dodge, E. N. Walton, Caleb Cooke, N. A. Horton,  
Alfred Osgood.

*Library Committee.*

J. G. Waters, Alpheus Crosby, E. B. Willson.

*Publication Committee.*

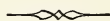
A. C. Goodell, Jr., F. W. Putnam, R. S. Rantoul, Henry M. Brooks,  
E. S. Atwood.

The PRESIDENT spoke of the movement for a "Free Library" in Salem, and a desire of many citizens for the coöperation of the Salem Athenæum and Essex Institute with the city government and others interested in the

attainment of this object ; and suggested the appointment of a committee to confer with a committee of the city government and other institutions, and, when a plan has been matured, to report the same for the action of the Institute, at a meeting legally called for the purpose.

The President, Vice Presidents, Recording Secretary and Librarian were chosen on said committee.

The SECRETARY spoke of some flowers which were upon the table, and alluded briefly to the prospect of the horticultural exhibitions the coming season.



REGULAR MEETING, MONDAY, MAY 19, 1873.

Meeting this evening at 7.30 o'clock. The PRESIDENT in the chair. Records read.

Horace B. Sargent of Salem was elected a resident member.

Adjourned to Thursday evening, May 22.

# BULLETIN

OF THE

## ESSEX INSTITUTE.

---

---

VOL. 5.

SALEM, MASS., JUNE, 1873.

No. 6.

One Dollar a Year in Advance. 10 Cents a Single Copy.

---

---

ADJOURNED MEETING, THURSDAY, MAY 22, 1873.

THE PRESIDENT in the chair. Records of preceding meeting read.

The SECRETARY announced the correspondence :—

From Stephen M. Allen, Boston, May 16; Jacob Batchelder, Lynn, May 21; Caroline H. Dall, Boston, May 15; B. H. Hall, Troy, New York, May 12, 19; J. C. Holmes, Detroit, Michigan, May 15.

The LIBRARIAN reported the following additions :—

*By Donation.*

ANDERSON, M. C. The Holy Bible. 1 vol. 12mo. London, 1658.

BUTLER, B. F., of U. S. H. R. Congressional Globe, 2d Session, 42d Congress. 1871-72. 5 vols. 4to. Index, 1871-72. 1 vol. 4to. Appendix, 1871-72. 1 vol. 4to. Ninth Census of the U. S., 1870. 1 vol. 4to. Message and Documents, 1872-73. 4 vols. 8vo. Department of Agriculture, 1871. 1 vol. 8vo. Commercial Relations, 1871. 1 vol. 8vo. Geological Survey of Montana and the Adjacent Territories, 1871. 1 vol. 8vo. Land Office Reports, 1870, 1871. 2 vols. 8vo. Geological Survey of Wyoming and Contiguous Territory, 1870. 1 vol. 8vo. Patent Office Reports. Vols. ii, iii, 1839. 2 vols. 8vo. Finance Report, 1872. 1 vol. 8vo.

CROSBY, ALPHEUS. Boston Daily Advertiser, 1869, 1870, 1871, 1872. The Commonwealth, 1865, 1866, 1867, 1868, 1869, 1870, 1871, 1872. Boston Daily Journal, 1867, 1868, 1869, 1870, 1871, 1872. Salem Gazette, 1863, 1864, 1865, 1866, 1867, 1868, 1869, 1870,

1871. Salem Observer, 1833, 1864, 1835, 1863, 1867, 1868, 1839, 1870, 1871, 1872. Salem Register, 1863, 1834, 1835, 1836, 1837, 1838, 1839, 1870, 1871. Boston Daily Transcript, 1865, 1866, 1867.

NATIONAL ASSOCIATION OF WOOL MANUFACTURERS. Bulletin, Jan.-Mch., 1873.

U. S. PATENT OFFICE. Official Gazette, Mch. 25.

WARD, JULIA E. Catalogue of the Mt. Holyoke Female Seminary in South Hadley, Mass., for 1872-3. 8vo pamph.

*By Exchange.*

BOTANISK TIDSSKRIFT, KJÖBENHAVN. Tidsskrift, Anden Raekke. Forste Bind. Tredje and Fjaerde Haefte. 2 pamphlets, 8vo.

KONGELIGE DANSKE VIDENSKABERNES SELSKAB KJÖBENHAVN, Oversigt, 1871. No. iii. 1872. No. i. 2 pamphlets, 8vo.

KÖNIGLICHE GESELLSCHAFT DER WISSENSCHAFTEN. Göttingen Nachrichten, aus dem Jahre, 1872.

MINNESOTA HISTORICAL SOCIETY. Report for 1872. 8vo pamph.

NATURFORSCHENDE GESELLSCHAFT IN BERN. Mittheilungen, Nos. 745-791. 1871.

NEW ENGLAND HISTORIC-GENEALOGICAL SOCIETY. Register and Journal of, April, 1873.

PHYSIKALISCH MEDICINISCHE GESELLSCHAFT IN WÜRZBURG. Verhandlungen, Neue Folge, iii Bd., iii Heft, Würzburg, 1872.

VEREIN ZUR BEFÖRDERUNG DES GARTENBANES, BERLIN. Wochenschrift, Nos. 1-52, 1872.

YALE COLLEGE. Catalogue of the Linonian Brothers' Library. 1 vol. 8vo.

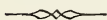
PUBLISHERS. Bouton's Catalogue. Gloucester Telegraph. Hardwicke's Science Gossip. Haverhill Gazette. Ipswich Chronicle. Lawrence American. Lynn Reporter. Lynn Transcript. Nation. Nature. Peabody Press. Quaritch's Catalogue. The Foxboro Times. Salem Observer.

The PRESIDENT noticed the recent donation, from Henry K. Oliver of Salem, of a portfolio containing plans of several of the old houses of Salem, and other architectural designs, made by Samuel McIntire, the noted architect of Salem, during the latter part of the last and the first of the present century; also a manuscript book of records, entitled, "The First Book of Records of the Proprietors of Common Lands of Salem Village," presented by Miss Ruth Marsh of Peabody.

Christopher Metzger of Danvers was elected a resident member.

EDWARD BROWN, of Brooklyn, New York, occupied the hour with an interesting lecture upon "Christianity in

its Relation to Moral Philosophy and Literature." Mr. Brown was educated a "Friend," and is now a member of that society, and it was from this standpoint that the subject was viewed.



#### SPECIAL MEETING, MONDAY, JUNE 9, 1873.

MEETING at 8 P.M. The President in the chair.

The President stated that this meeting was called to pay a tribute of respect to the memory of Rev. John Lewis Russell, of this city, an original member of the Essex County Natural History Society, and its president from 1845 to 1848, when the union with the Essex Historical Society was effected, and a new organization adopted under the name of Essex Institute. Mr. Russell was a vice president of the Institute from its organization until 1861.

Rev. E. B. WILLSON presented the following resolutions, which, after appropriate remarks from Rev. Messrs. Willson and Batchelor, Mr. George D. Phippen and Rev. Messrs. E. C. Bolles and E. S. Atwood, were adopted:—

*Resolved*, That in the death of JOHN LEWIS RUSSELL, the Essex Institute has lost one of its founders, one of its earliest, most learned and most enthusiastic leaders in scientific study:—one who for many years filled important offices in its management, and devoted himself to its interest with an inspiring zeal and energy.

That in his death science loses a loyal and ardent disciple; and in his own chosen department of Natural History a distinguished proficient.

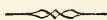
That public education owes much to him as a lecturer and teacher in her normal and other schools of higher instruction, where his rare power of clothing science in



beauty kindled in many a desire for closer acquaintance with nature, and discovered to them a new and pure joy in the pursuit of that knowledge, through her boundless realms of order and ever unfolding life.

*Resolved*, That the foregoing resolutions be entered upon the records of the Institute; and that a copy of them be sent to the family of Mr. Russell, with an expression of the sincere sympathy felt by the members of the Institute for them in their bereavement.

A committee consisting of G. D. Phippen, S. P. Fowler and F. Putnam was requested to take such further notice of the deceased as may be deemed appropriate.



FIELD MEETING AT AMESBURY, THURSDAY,  
JUNE 19, 1873.

THE leafy month of June, with the fields and landscape clothed in their richest verdure, and dotted with the varied hues of many flowers, invites the Institute to commence the series of field meetings, the succession of which during the season exhibits the different phases which nature assumes, from the opening of the bud to the ripening of the golden fruits of autumn. This county, located in the northeastern corner of the Old Bay State, and having one side washed by the waters of the ocean, offers to the student of nature an opportunity to investigate the marine fauna and flora, in addition to those usually found in our excursions to the inland towns, where an entirely different class of objects, peculiar to such localities, grow in their wild luxuriousness.

The attendance at this field meeting was larger than usual for the opening meeting, and, although the weather was uncomfortably warm, the occasion was one of great

enjoyment. The party went by the train leaving Boston at 7.30, and on arrival at Newburyport were met by Messrs. Brown and Crane, a committee of the Amesbury and Salisbury Historical Society, who had come thus far to welcome them and to escort them to their destination. On arrival at the Salisbury station, guides were found in readiness to accompany those who desired to visit the Indian shell heaps, which were more accessible from that point than from the one at Amesbury. On arrival at the end of the route, many of the leading citizens had assembled and extended a cordial reception. The party then separated into groups, and sallied forth in charge of trustworthy guides to visit various objects of interest abounding in the vicinity. Many who had been long familiar with the writings of the distinguished poet, JOHN G. WHITTIER, now for the first time saw his cheerful face; and his home, and the unpretending meeting-house where he worships, were among the objects sought with a feeling akin to veneration by those who have admired his touching word pictures in simple verse. The extensive woollen mills and the flourishing carriage manufactories attracted much attention, and the general appearance of thrift and industry was a subject of commendation. Several of the churches and school-houses were also objects of interest. The woods, swamps and ponds were peculiarly attractive, and were visited by many. A large company ascended Powow Hill, said to be the highest land in the county, and were well repaid for their toil by the extensive views in all directions. With the unaided eye four states can be clearly seen, and with a powerful glass the mountain peaks of the Green and White ranges can be readily discerned.

Shortly after one o'clock the party repaired to Merri-mac Hall, where the ladies of Amesbury had prepared

the tables with a bountiful and elegant repast embracing everything seasonable and delectable — meats, pastry, cake, ices, coffee, fruits, flowers, etc.

The meeting for reports and addresses was held at the Universalist Church at 2.30 P.M.

As the audience assembled a voluntary was performed upon the fine organ.

President WHEATLAND in the chair.

Records of preceding meeting read.

The SECRETARY announced the following correspondence :—

From Stephen M. Allen, Boston, June 6; E. C. Bolles, May 19; S. P. Boynton, Lynn, June 17; C. H. Dall, Boston, June 1. 3; G. F. Flint, June 2; J. A. Gillis, May 20; L. F. Griffin, Andover, June 18; Harold Herrick, New York, June 7, 16; A. Lackey, Groveland, May 29; W. P. Lunt, Boston, June 18; A. Osgood, Newburyport, May 9, 17, June 4, 13; G. W. Pease, June 6; M. A. Stickney, May 30; M. Vickary, Lynn, May 31; C. A. Walker, Chelsea, May 20, June 13; E. B. Willson, May 17; G. B. Wood, Elizabethtown, N. Y., June 9; W. C. Wood, Wenham, May 23; Ashbel Woodward, Franklin, Conn., June 6; Berlin, die Gesellschaft Naturforschender, March 22; Buffalo Society of Natural Sciences, June 6.

The LIBRARIAN reported the following additions :—

*By Donation.*

ATWOOD, E. S. Memoir of Nathaniel Bowditch, 1 vol. 4to. Introductory Discourse and the Lectures of the American Institute of Instruction, 1831, 1833. 2 vols. 8vo. Miscellaneous volumes, 6.

BUTLER, B. F., M. C. Compendium of the Ninth Census of the U. S., 1870. 1 vol. Report on the Commerce and Navigation of U. S., 1872. 1 vol.

CITY OF BOSTON. Boston City Documents, 1872. 3 vols.

CLOGSTON, WM., of Springfield, Mass. Zanesville Directory, 1872-73. 1 vol. Lockport City Directory, 1871-72. 1 vol. Manchester Directory, 1871. 1 vol. Auburn Directory, 1869. 1 vol. New Bedford Directory, 1865. 1 vol. Burlington Directory, 1871-72. 1 vol. Lawrence Directory, 1857. 1 vol. Manchester Directory and Almanac, 1856. 1 vol. Northampton Directory and General Advertiser, 1860-61. 1 vol. Chelsea Directory, 1860-61. 2 vols.

DRIVER, SUSAN S. History of the late Polish Revolution. 1 vol. Agriculture of Mass., 1854, 1857. 2 vols.

FOLGER, W. C., of Hingham. Miscellaneous Town Reports, 5.

GRANT, J. C. Scientific American, 1853-72.

GREEN, S. A., of Boston. Miscellaneous pamphlets, 9.

JOHNSON, MRS. SAMUEL. Miscellaneous pamphlets, 26. Almanacs, 6.

LEE, JOHN C. Commercial Bulletin, March 15, 22, 29, April 5, 12, 1873.

MARSHALL, WM., of New York. Reports of the Brooklyn Park Commissioners, 1861-1873. 1 vol.

OSGOOD, C. S. Manual for the Common Council of Salem, 1873. 1 vol.

PALFRAY, C. W. Steam-Boiler Explosions, by J. R. Robinson. 1 vol. Protection to Native Industry. 1 vol. Miscellaneous pamphlets, 20.

POOLE, F., of Peabody, Mass. Peabody Press and Danvers Monitor, 1872.

SALEM MARINE SOCIETY. Laws and List of Members from 1766-1872. 1 vol.

SILSBEE, Mrs. B. H. The Science of Government, by C. B. Goodrich. 1 vol. Report on the Trees and Shrubs in Mass. 1 vol. History of the Water Works of Boston, 1868. 1 vol. Abstract of the Mass. School Returns, 1845-46. 1 vol. Eighth Census of the U. S., 1860. 1 vol. Patent Office Report, 1854. 2 vols. Salem Municipal Register, 1867. 1 vol. Water Power of Maine. 1 vol. 22 pamphlets.

STEARNS, R. E. C., of San Francisco, Cal. Directories of San Francisco for 1863-64, 1870. 2 vols.

TENNEY, HARRIET A. Catalogue of the Michigan State Library, 1873-74. 1 vol.

U. S. PATENT OFFICE. Official Gazette, May 6, 13, 27, 1873.

WALKER, F. A., of Washington, D. C. Compendium of the Ninth Census of the U. S., 1870. 1 vol. 8vo.

The PRESIDENT, in his opening remarks, alluded to the pleasant associations connected with a visit to this town of Amesbury, well known, with its neighbor, Salisbury, to the mercantile community, for its varied mechanical industries, and especially in the field of letters, as the home of New England's best known and honored poet, Whittier, who from this quiet retreat has sent forth many of those graphic lines that have contributed so much to the cause of liberty and human progress. He said that ten years had elapsed since the Institute held its first meeting in this town. It was on Thursday, June 25, 1863, one of the loveliest of June days. The people were very kind and hospitable, and pointed out the various objects of historic and scientific interest. Our vice president, Mr. A. C. Goodell, Jr., was present on that occasion, and gave an account of his rambles among the historic memorials and relics, noticing among others the graves of two of the first ministers, Rev. William Worcester and Rev. John Wheelwright, the latter distinguished for his persistent advocacy of the cause of Anne Hutchinson and for the persecutions he endured therefor; the old Bartlett house, where Josiah Bartlett, one of the first signers of the Declaration of Independence, was born, and the room in the building where the commis-

sioners met to define the boundary between New Hampshire and Massachusetts.

The President alluded to a singular coincidence that had occurred during the past week: the remains of three persons who had been in years past interested in the objects of the Institute, have been consigned to the silent tomb, and he offered the following tribute to their memories.

1st. Rev. JOHN LEWIS RUSSELL, one of the founders of the Natural History Society and, after 1848, the vice president of the Natural History department of the Essex Institute; one of the earliest, most learned and most enthusiastic leaders in scientific study; for many years filling important offices in these institutions; cabinet keeper, curator, vice president and president. At all our early field meetings he was a constant attendant and frequently the presiding officer, devoting himself with an inspiring zeal and energy to contribute to the interest and importance of these gatherings. He was the son of Col. John and Eunice (Hunt) Russell, and was born at Salem, Dec. 2, 1808, and received the first rudiments of instruction at her schools. When John was about the age of eleven his father removed with his family to Amesbury and resided several years in that place, having the charge of the Amesbury Iron factory, and then returned to Salem; during this period John attended the Newburyport Academy, under Masters Bailey and Pike, except the year immediately preceding his admission to Harvard College in 1824, which was spent in the town where we are now assembled, studying under the direction of Rev. Mr. Barnaby, the Baptist clergyman—probably well known to some now present. After graduation he entered upon the study of the ministry, and in due course of time was licensed to preach. He was settled over churches in Chelmsford,



Hingham, Brattleboro and several other places. He, however, always considered Salem his home, and for the last twenty years has permanently resided there, withdrawing from ministerial labors and devoting almost exclusive attention to scientific investigation. He was eminently known as a botanist, particularly in the cryptogamic flora of this county. He died on Saturday afternoon, June 7, 1873.

2nd. WILLIAM OLIVER THAYER, son of Oliver and Rachel (Bancroft) Thayer, of Salem. In his early boyhood William brought to the horticultural exhibitions contributions of fruits and flowers from his father's garden. Since that time he has always been an interested member, although his business avocations prevented him from taking an active part in the meetings of the Institute. He died on Monday, June 9, 1873, aged thirty-nine years and nine months.

3rd. HON. RICHARD SALTONSTALL ROGERS, well known to those of a past generation as an active merchant in the firm of N. L. Rogers & Bros., who were the pioneers and founders, in the United States, of the Zanzibar and New Holland trades; for many years, down to 1842, were actively engaged in foreign commerce mainly with the East Indies, and were among the most distinguished merchants of Salem. He was son of Nathaniel and Abigail (Dodge) Rogers, who were both eminent teachers in Salem. He was earnestly interested in municipal affairs, a good citizen and an energetic, enterprising and efficient man of business, and much respected for his many excellent qualities; always a liberal patron of the Institute and contributed largely to its success. He died at his residence in Salem, June 11, 1873, aged eighty-three years.

Expressing great pleasure at meeting so many of those

who were present at the meeting of 1863, and the opportunity now afforded of extending our acquaintances in this goodly place, the President called upon

HON. ALLEN W. DODGE, of Hamilton, who responded and said that while he did not profess to be much of a scientific man, he did claim to be second to none in his love for nature and his desire to see the objects of the Essex Institute accomplished. The President had spoken of the death of some who had been identified with us, and we are reminded that men die, but events live. If the man who makes a blade of grass grow where it did not is a benefactor, so is he who introduces a new fruit or a new flower, or who opens up some new view of nature. The last quarter of a century had been one of great progress, and we cannot foresee what the next twenty-five years will bring in the department of scientific investigation. The question may be asked, What good will it do? It will make somebody better; it will make somebody happier. He spoke of the pleasant morning hours he had spent in his garden, and advised any one who did not know by experience what it was to take a little exercise before breakfast, to get up some morning at four o'clock, and try the experiment.

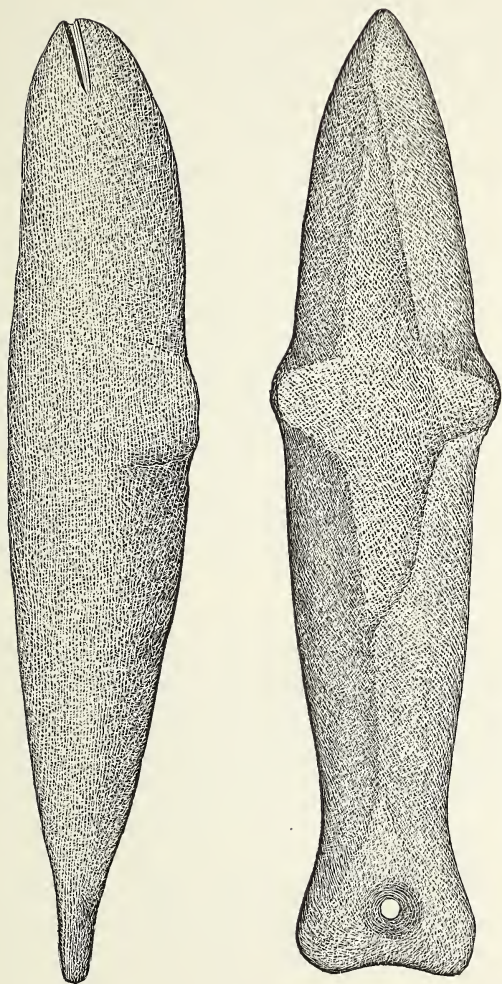
Mr. Dodge then referred to some ancient wills and inventories he had examined, and spoke of the curious insight afforded by probate documents into domestic and social life of the olden times. Our forefathers did not have friction matches, but tinder boxes, or, earlier still, tinder horns. Our maternal ancestors manufactured their own cloth, and made it into garments and bedding, and in those days it required these things in abundance to provide for the large families of children, then called blessings. At that period they raised children, and

cattle, and all kinds of stock, in great abundance. Well, there was more room to grow then than now, and our ancestors were equal to the occasion. Mr. Dodge concluded with some valuable practical suggestions, expressed in humorous and attractive phrase, and thanked the people of Amesbury and Salisbury for the active interest manifested on this occasion.

Mr. F. W. PUTNAM exhibited a number of stone implements which he had been allowed to select for the purpose from the very interesting collection belonging to the Amesbury Natural History Club. He stated that he had selected the forms on the table as they illustrated the various types of stone implements found throughout New England and consisted of the several forms of arrow-heads, spearheads, skin-dressers and scrapers, chisel and gouge-shaped implements, axes, hammer-stones, sinkers, pestles, etc. Many of the forms on the table were common the world over, and showed conclusively that the same ends were accomplished by the same means; other forms, though belonging to the same general groups, were, however, slightly different in the details of their execution and were peculiar to New England so far as he knew. The long-bladed axe, with the rounded upper portion, and some of the gouged-shaped implements came into this group. The large, roughly made "plumb bob" shaped "sinkers" are one of the forms, as yet to his knowledge, found only in New England. These large pear-shaped implements are quite common on the sea-coast and are so well adapted for use as sinkers to nets that they are generally classed as such, though it cannot be questioned but that many of them run into the forms of pestles, and would serve well for use as such, provided grit was no objection as a component of "Indian cake;"

though the grit would be avoided if such pestles were used in wooden mortars similar to those in use by the early white settlers in this country. The extreme softness of the stone of which these large pear-shaped implements were made, combined with the fact that they seldom exhibit signs of use at their rounded end, was the only argument against their use as pestles. But as an argument that they were sometimes used as pestles it was stated by one of the gentlemen of the Amesbury Club that the specimen on the table was found in a stone mortar; there was also a specimen in the Salem collection that was said to have been found in the same connection. Some of the arrowheads among the specimens were very fine, and exhibited the several forms, from the leaf-shaped to the barbed and stemmed, several specimens being of the form, having one of the wings longer than the other. While some of the symmetrical arrowheads were very long and slender, others were of the short and broad shape. There were also in the collection a number of specimens of stone-drills which are often placed by collectors with the arrowpoints, but which on examination show that a different use was intended, and implements of this character are now believed to have been made and used simply for the purpose of drilling holes in other implements. One of the largest and most perfect of these drills which Mr. Putnam had ever seen was exhibited.

Besides these various implements there was a very interesting carved stone belonging to the collection, which Mr. Putnam had obtained permission to figure. It rudely represented a porpoise or still better a white whale or *Beluga*, as it had no protuberance representing the dorsal fin of the porpoise, and the *Beluga* is without the fin. The flippers or pectoral fins were represented by the pro-



Indian totem from Seabrook, N. H., one-half natural size. In Coll. Amesbury Nat. Hist. Club.



tuberances on the sides, and the mouth was cut in and well indicated. The broad horizontal tail was decidedly cetacean in character, and the whole carving, though rudely done by picking the sienitic rock from which it was made with stone implements, was yet so characteristic as to indicate at once that a porpoise or Beluga was intended. A hole through the portion representing the tail shows that the object was suspended, but the stone is so large and heavy that it can hardly be classed as a personal ornament, though it is probably to be regarded as a totem. It measures ten inches in length by about two in depth at the pectoral fins, and is about two and a quarter inches wide across the pectorals as measured on the under side. This interesting specimen was found at Seabrook, N. H., and it is said that two other similarly worked stones have been found at the same place.

[The figures here given from drawings made by Capt. J. A. Greeley of Amesbury, and Mr. J. H. Emerton of Salem, represent the "totem" in profile and from the under side.]

Mr. JAMES H. EMERTON gave a curious account of several species of spiders, particularly one that never builds its own house, but dislodges some other tenant, thus living by acquisition rather than construction.

Mr. EMERTON having placed a few batrachians, collected by some of the party, on the table, Mr. PUTNAM was called upon to give an account of them, which he did by reviewing the batrachian fauna of the state, and noticing the various habits and peculiar notes of the several species of toads and frogs found in the vicinity, and comparing them with the salamanders, which are another order of the same class. He also gave an account of the development of the batrachians and showed the dif-

ferences between the salamander and frog in certain details, and that in the general law of development from the egg they agreed with each other and approached more nearly to the fishes than to the true reptiles, with which they were so commonly but erroneously classed by persons generally. He concluded his remarks by showing the close agreement between the true reptiles, comprising the snakes, lizards, turtles, etc., and the birds.

Rev. W. H. EATON, of Amesbury, by request, gave a short sketch of Rev. Mr. Barnaby, formerly settled over the Baptist church in Amesbury, and now, at the age of eighty-five years, engaged in his fourth pastorate over the church in East Hardwick, where he was originally ordained, and into which organization he had received more than twelve hundred members on profession of faith.

Mr. HOMER B. CRANE, of Amesbury, spoke briefly of the geological peculiarities of Amesbury, especially of Powow Hill.

Dr. H. G. LESLIE, President of the Amesbury and Salisbury Historical Society, alluded to the benefits to be derived from scientific research, and spoke of the vein of lead discovered near the summit of Powow Hill and also offered a few remarks on some of the stone implements that he had collected.

Mr. WILLIAM ASHBY, of Newburyport, now in his eighty-sixth year, spoke of his long interest in the Essex Institute, and bade it God speed in its work.

\* Rev. C. M. DINSMORE, of the Methodist church in Amesbury, spoke eloquently of the importance of teach-

ing from nature rather than depending exclusively upon text-books, and hoped that the minds of the people would turn more to the study of nature. In England, he said, the laboring people crowd out to scientific lectures, but in America, comparatively speaking, science has no interest.

WILLIAM C. BINNEY, Esq., of Amesbury, said he wished to express his gratitude to the Institute for this visit; he had been interested and had gained much information. He hoped ten years would not intervene before the next field day in Amesbury.

Rev. P. S. BOYD, of the Congregational church, in Amesbury, Mr. GEORGE WILLIAMSON, of Amesbury, and Dr. W. H. NOYES, of Newburyport, offered a few remarks.

William H. Dennet of Beverly and W. H. H. Marsh of Salem were elected resident members.

ALFRED OSGOOD, Esq., of Newburyport, introduced the following resolutions:—

*Resolved*, That the grateful thanks of the Essex Institute be tendered to Mrs. Jacob R. Huntington, Mrs. J. Hume, Mrs. S. S. Spear, Mrs. P. S. Boyd, Misses A. M. Boardman, Lizzie Hume and May Huntington, Dr. A. T. Brown, Messrs. E. A. Brown, H. B. Crane, J. Hume, J. T. Greeley, Wm. D. Pecker and J. G. Whittier; also to the Amesbury and Salisbury Historical Society, the proprietors of Merrimac Hall and of the Universalist church, and all who have contributed to make this meeting so successful.

The resolution was unanimously adopted and the meeting adjourned.

# BULLETIN

OF THE

## ESSEX INSTITUTE.

---

VOL. 5.                      SALEM, MASS., JULY, 1873.                      NO. 7.

One Dollar a Year in Advance. 10 Cents a Single Copy.

---

### FIELD MEETING AT LYNNFIELD, WEDNESDAY, JULY 30, 1873.

THE party arrived about 10.30 A.M., and after assembling in the church, which was the head-quarters for the day, and where the preliminary arrangements were made, separated into groups for the various excursions; some went to "Robin's Rock," some visited the woods; others collected about the borders of the lake. Owing to the purity of the water the dredging party were not very successful in collecting specimens though several curious and interesting forms were detected.

Lynnfield is a place which has many natural attractions. It was formerly a part of Lynn, at which time it was known as Lynn End. It is almost exclusively a farming town, and its public affairs are always conducted frugally and with good judgment, so that its taxation is low, and the town is never in debt. It has about a thousand in-

habitants, and two villages which are three miles apart, neither being large settlements, but the largest of the two being at the Centre, which has two meeting houses and the town hall. The latter institution is, in fact, contained in the old church, which, in Parson Motey's day, began to harbor a larger share of the "liberal" theology than has been common in country towns; Mr. Motey himself, in his closing years, being a Unitarian. The result was the building of a new church devoted to the more exclusive propagation of the "Orthodox" creed. The second story of the old church is still retained as a place of worship, and Mr. Eben Parsons, a lay minister, of the Unitarian denomination, regularly officiates there. The other church is at the present time without a pastor. In South Lynnfield, near the hotel, there is a small meeting house, where regular preaching is supplied by Mr. J. F. Wilson, a student from Andover. For a number of years, the ministerial duties were performed by Mr. Jacob Hood, who formerly resided in Salem, but is now a resident of Lynnfield Centre.

The Lynnfield hotel, which is an institution that dates with the building of the Newburyport turnpike, is not now used for public purposes, but in its day it has served as a landmark which will be long remembered as the resort of sleighing parties from Salem.

Humphrey's Pond, near the hotel, is a beautiful sheet of very pure water. During the war times, the pond, with the level land adjoining, afforded sufficient advantages for the location of an encampment, and the twenty-second and twenty-third regiments were stationed there. The pond has for many years afforded a desirable location for summer residents, and the estate of Mr. Henry Saltonstall (on the Peabody side of the line) has long been noted for the attractiveness of its situation. Mr.



D. P. Ives has also recently built a summer residence on the margin of the pond.

Humphrey's Pond was so named from John Humphrey, who, in the early settlement of the country, received from the king a grant of five hundred acres of land, which included this sheet of water. Humphrey married a daughter of the Earl of Lincoln, and sister of the Lady Arabella Johnson. Suntaug Lake is a later designation for this pond, and one which is growing into common use. The region about the pond is high land. The pond itself has a small water-shed, and, as no stream flows into it, it is believed to be supplied from springs. The streams which flow from it, on either side, are tributary to the Saugus and Ipswich rivers. Its high position and the great purity of the water have combined to cause the pond to be frequently spoken of as desirable in supplying other and larger places with water for domestic purposes, though as yet no steps have ever been taken in this direction. There is an island in the pond, and it is recorded that, in the early days of the settlement, munitions were stored there "for the time of need."

Robin's Rock, about half a mile from the hotel, is a big rock with a hollow in the top, which is said always to contain water. The ledge is granite, of very excellent quality, and Prof. Hitchcock says it cannot be distinguished from that of Quincy. In August, 1849, a company was formed here for the purpose of working this quarry; but the transportation facilities not being all that was desirable, the work was finally relinquished. Of late another part of the quarry is being worked by parties from Peabody, and there is no reason to doubt that eventually it will be worked quite extensively.

Gen. Josiah Newhall, who is now in the neighborhood of eighty, is a man of much activity, and retains the full enjoyment of all his faculties. He moves about with the

briskness of a man of fifty, and feels a warm interest in the history and welfare of his native town, as well as in all objects that come under the special cognizance of the Essex Institute. He was born on the spot where he now lives, in a house built by his grandfather a hundred and twenty-five years ago; his present house having been built by himself in 1823. Nearly or quite all the trees growing about and near his premises were planted by himself, and the interest in his grounds was enhanced, to many of the party, by the fact that he has as many as fifty bearing fig trees, which are annually removed to his cellar before the cold weather begins, and again set out in spring. He has also one pomegranate tree or bush. During the day his house was thrown open to the party, and he kindly provided tea and lemonade for their refreshment.

The afternoon meeting was called to order at a quarter before three—the PRESIDENT in the chair. Records of preceding meeting read.

The SECRETARY announced the following correspondence:—

From George Arnold, Boston, July 11; J. W. Chadwick, Brooklyn, New York, June 19; W. H. Dennet, Boston, June 21; Samuel A. Drake, Boston, July 28; Samuel G. Drake, Boston, July 24; W. H. Eaton, Amesbury, June 25; Charles Hallock, New York, July 22, 26; W. P. Lunt, Boston, July 18; W. H. H. Marsh, Salem, June 21; Alfred Osgood, Newburyport, July 10; James Perkins, Boston, July 7; S. J. Spalding, Newburyport, June 26; H. L. Williams, Salem, July 19; American Pomological Society, Circular, 14th Session; Brazil, Legação do, Washington, June 10; Belgique, Société Entomologique de, fev. 3; Erlangen, Die physikalisch-Medicinische Societat in, 3, 2, 73; Frankfurt a M., Naturforschenden Gesellschaft, Jan. 10; Freiburg, Die Naturforschende Gesellschaft, Marz 16; Liverpool Literary and Philosophical Society, April 9; Lisbonne, L'Académie Royale des Sciences, March 26; Riga, der Naturforscher Verein zu, Nov. 1; Hobart Town, Royal Society of Tasmania, Nov. 28; Washington, Smithsonian Institution, July 22, 28.

THE LIBRARIAN reported the following additions:—

*By Donation.*

ALLEN, JOHN FISKE. Boston Cultivator for 1871, 1872. Christian Register for 1871, 1872.

BUTLER, B. F., M. C. Memorial Address on Hon. Garrett Davis, Dec., 1872. Compilation of the Internal Revenue Laws of the U. S., Jan. 6, 1872.

- EMERSON, GEO., B. Massachusetts Teacher, 9 numbers.
- FOOTE, C. Files of several County Papers for April, May and June, 1873.
- FOOTE, H. W., of Boston. James Freeman and King's Chapel, 1782-87. A Chapter in the early History of the Unitarian Movement in New England. Sixth Annual Report of the Directors of the Mass. Infant Asylum, April 1, 1873.
- GREEN, S. A., of Boston. Miscellaneous pamphlets, 16.
- HITCHCOCK, GEO. B., of San Francisco. San Francisco Directory, 1850. 1 vol. 18mo. Hand-Book Almanac for the Pacific States, 1863. 1 vol. 12mo.
- HUMPHREYS, Brig. Gen. A. A., of Washington. Report on the Potomac Aqueduct of the Alexandria Canal, 1835-40. 1 vol. 4to.
- LEE, JOHN C. Commercial Bulletin for June 7, 14, 21, 28, July 5, 12, 19, 1873.
- LORING, GEORGE B. Thirty-sixth Annual Report of the Board of Education, Jan., 1873. 1 vol. 8vo. Thirtieth Registration Report of Mass., 1871. 1 vol. 8vo. Ninth Annual Report of the Board of State Charities, 1871-72. 1 vol. 8vo. Agriculture of Mass., by C. L. Flint. 2d Series, 1872-73. 1 vol. 8vo. State Board of Health of Mass., Jan., 1873. 1 vol. 8vo. Miscellaneous pamphlets, 3.
- NATIONAL ASSOCIATION OF WOOL MANUFACTURERS. Bulletin for April-June, 1873.
- NORTH CHURCH AND SOCIETY. First Centenary of the North Church, Salem, 1772-1872. 1 vol. 8vo.
- PERKINS, JAMES, of Boston. Half Century Membership in R. W. Charles W. Moore in Lodge of St. Andrew, Boston. 1 vol. 8vo.
- PHILLIPS, STEPHEN H., of San Francisco. San Francisco Directories for 1867-68, 1868-69. 2 vols. 8vo.
- SAVILLE, J. H., of Washington, D. C. Report of the Board of Civil Service Examiners for the Treasury Department, Jan., 1873.
- STICKNEY, M. A. Miscellaneous pamphlets, 25.
- STONE, Mrs. J. H. Boston Almanacs, 1839-1862. 29 vols. 16mo. Salem Directories, 1837, 1842, 1846, 1850, 1853, 1855, 1857, 1859, 1861. 9 vols. 12mo. American School Hymn Book. 1 vol. 16mo. Oliver Optics, 39 numbers. The Churchman, 50 numbers. Farmer's Monthly Visitor, 36 numbers. Boys' and Girls' Weekly, 27 numbers. Miscellaneous pamphlets, 77.
- UPHAM, W. P. Centennial of the Boston Pier, or Long Wharf Corporation, 1873.
- U. S. PATENT OFFICE. Official Gazette for June 3, 10, 17, 24, July 1. 8.
- VALENTINE, Mrs. Geological Survey of Park County, by B. C. Hobbs, LL.D.
- WILLIAMS, HENRY L. Miscellaneous pamphlets, 67.
- WINTHROP, ROBT C., of Brookline. Dedication of the Brookline Town Hall Feb. 22, 1873.

*By Exchange.*

- ACADEMIA REAL DAS SCIENCIAS IN LISBOA, PORTUGAL. Lendas da India por Gaspar Correa, Tomo i, parts 1, 2. Tomo ii, parts 1, 2. Tomo iii, parts 1, 2. Tomo iv, parts 1, 2, 1859-1866. Journal de Sciencias Mathematicas, Tomo i, ii, iii, 1868-1871. 3 vols. 8vo.
- ACADÉMIE ROYALE DES SCIENCES, ARTS ET BELLES-LETTRES IN CAEN. Memoires, 1873. 1 vol.
- AMERICAN ACADEMY OF ARTS AND SCIENCES, BOSTON. Proceedings of, pp. 409-504, 1872-3. 8vo pamph. Memoirs of, New Series. Vol. ix, part 2.
- AMERICAN PHILOSOPHICAL SOCIETY. Proceedings of the, May-June, 1873.
- BIBLIOTHÈQUE UNIVERSELLE ET REVUE SUISSE. Archives des Sciences Physiques et Naturelles. Nos. 182, 183, 184. Feb., March, April, 1873.
- BUFFALO SOCIETY OF NATURAL SCIENCES. Bulletin of. Vol. i, No. 1. April, 1873.
- CANADIAN INSTITUTE. Journal of Science, Literature and History. May, 1873.

- CINCINNATI PUBLIC LIBRARY. Annual Report of the Common Schools of Cincinnati, 1872-3. 1 vol.
- CROSSE ET FISCHER. Journal de Conchyliologie. 3e Série, Tome xii, No. 4, Tome xii, No. 1. 1872-73.
- DER PHYSICALISCH-MEDICINISCHEN, SOCIETAT IN ERLANGEN. Sitzungsberichte, iv Heft. Nov., 1871-Aug., 1872.
- GEORGIA HISTORICAL SOCIETY. Proceedings, Resolutions and Communications of the Hon. E. J. Harden.
- GESELLSCHAFT NATURFORSCHENDER FREUNDE IN BERLIN. Sitzungsberichte. Jahrg. 1872. 1 vol.
- IMPERIAL GOVERNMENT OF BRÉSIL. Climats, Geologie, Faune et Géographie botanique du Brésil. 1 vol. 8vo.
- INSTITUT HISTORIQUE IN PARIS. L' Investigateur, Nov., 1872-Jan., 1873. 38e Année.
- IOWA STATE HISTORICAL SOCIETY. The Annals of Iowa, April, 1873.
- K. K. ZOOLOGISCH BOTANISCHE GESELLSCHAFT IN WIEN. Verhandlungen, Bd. xxii, 1872. 1 vol.
- KÖNIGLICHE BAYERISCHE BOTANISCHE GESELLSCHAFT IN REGENSBURG. Flora, 1872. 1 vol.
- L' ATHÉNÉE ORIENTAL IN PARIS. Bulletin, 10 Année, No. 13. Juin, 1869.
- LIVERPOOL LITERARY AND PHILOSOPHICAL SOCIETY. Proceedings, Vol. xxvi, 1871-72.
- MASSACHUSETTS HISTORICAL SOCIETY. Proceedings of, 1871-73. 1 vol.
- NATURFORSCHENDEN GESELLSCHAFT IN EMDEN. Jahresbericht, 1871.
- NATURFORSCHENDE GESELLSCHAFT ZU FREIBURG. Berichte, Bd. vi. Heft 1, 1873.
- NATURFORSCHENDE VEREIN IN BRÜNN. Verhandlungen. Bd. x. 1871. 1 vol.
- NATURWISSENSCHAFTLICHEN VEREINE ZU BREMEN. Abhandlungen, iii Bd., 3 Heft, 1873. Beilage, No. II, zu den Abhandlungen des.
- NEW ENGLAND HISTORIC-GENEALOGICAL SOCIETY. Genealogical and Antiquarian Journal, July, 1873.
- NEW YORK GENEALOGICAL AND BIOGRAPHICAL SOCIETY. Genealogical and Biographical Record, July, 1873.
- PEABODY INSTITUTE OF BALTIMORE, MD. Sixth Annual Report of the Provost to the Trustees, June 5, 1873.
- PHILADELPHIA ACADEMY OF NATURAL SCIENCES. Proceedings of, Pt. i. Jan.-Feb., 1872.
- PHYSIKALISCH-MEDICINISCHE GESELLSCHAFT IN WURZBURG. Verhandlungen, Neue Folge. Bd. iii, Heft iv, 1872. 8vo pamph.
- RHODE ISLAND HISTORICAL SOCIETY. Proceedings of the Society for 1872.
- ROYAL SOCIETY OF TASMANIA. Monthly Notices for 1871. 1 vol. 8vo. Meteorological observations at Hobart Town, Result of five years. Tasmania, 1872.
- SENCKENBEIGISCHE NATURFORSCHENDE GESELLSCHAFT. Bd. viii, Heft 3, 4.
- SMITHSONIAN INSTITUTION. Smithsonian Contributions to Knowledge. Vol. xviii.
- SOCIÉTÉ D' ACCLIMATION IN PARIS. Bulletin Mensuel, 2me Série, Tome ix, No. 12, Dec., 1872.
- SOCIÉTÉ ROYALE DES ANTIQUAIRES, DU NORD A COPENHAGUE. Mémoires, Nouv. Série, 1872. Tillaeg til Aab ger for Nordisk Old Kyndighed og Historie; Aargang, 1872.
- VEREINS FÜR ERDKUNDE IN DARMSTADT. Notizblatt, Heft xi, No. 121-132, 1872.
- ZEITSCHRIFT FÜR DIE GESAMMTEN NATURWISSENSCHAFTEN IN BERLIN. Bd. v, vi. Neue Folge, 1872. 2 vols.
- ZOOLOGISCHE GESELLSCHAFT. Zoologische Garten, xiii Jahrg. Nos. 7-12, 1872.



ZOOLOGISCH-MINERALOGISCHER VEREIN IN REGENSBURG. Correspondenz-Blatt, xvii Jahrg, 1872. 1 vol.

PUBLISHERS. American Naturalist. Gardener's Monthly. Gloucester Telegraph. Hardwicke's Science Gossip. Haverhill Gazette. Historical Magazine. Ipswich Chronicle. Lawrence American. Lynn Reporter. Lynn Transcript. Medical and Surgical Reporter. Nation. Nature. Peabody Press. Sailors' Magazine and Seamen's Friend. Salem Observer. Silliman's Journal. Western Lancet.

The PRESIDENT in his opening remarks alluded to the pleasure that he had always derived, even in childhood from rambling over these hills, fishing in the pond near by and collecting flowers from the meadows and fields. Since the organization of the Institute, four meetings have been held in this place and vicinity. The second field meeting took place in this town, July 24, 1849 (the first having been held in Danvers in the same year). Among the noticeable productions were the locust trees (*Robinia pseudacacia*), large and vigorous, and free from the borer. The serpentine ledges were also duly investigated and discussed at the afternoon session, in the house of the late Asa T. Newhall, Esq. On October 15, 1856, another meeting was held at the house of Rev. A. P. Chute, who had a fine collection of shells and minerals, a meeting having been attempted one day in the August previous, that failed on account of a drenching rain. On June 26, 1861, another meeting took place, at which Rev. E. B. Willson presided; and this was the last that had occurred in the town previous to the one this day, except the meeting at Lynnfield Centre, in August, 1858.

The President alluded to the recent death of a corresponding member, Col. JOHN WELLS FOSTER, who died at his residence in Hyde Park, Chicago, on Sunday, June 29, 1873, aged fifty-eight, one of the most eminent persons of the city of his adoption. He was born at Brimfield, Mass., in 1815; his profession was civil engineering and at an early period of his career he began to follow the bent of his genius. He was prominent in Massachusetts



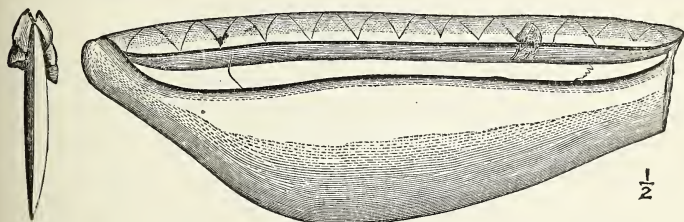
politics from 1854 to 1857. About 1858 he removed to Chicago. His rank as a *savant* was at the very front and his reputation world-wide.

Mr. F. W. PUTNAM being called upon spoke of Col. Foster's eminence as a geologist and archæologist. He was also one of the early government surveyors, and with Prof. Whitney, surveyed the mineral regions of Lake Superior, their joint report being printed by the United States government. Col. Foster had made several discoveries in geology and especially in connection with the formation of the Laurentian hills. Of late years he paid especial attention to the study of the mound-building race, and only a few days before he died, his volume on the prehistoric race of America was published.

Mr. PUTNAM then proceeded to speak of toads and fishes. The young toads now abound on the margin of the pond, having just passed from the tadpole state, the tail being nearly absorbed. Mr. Putnam described the hatching and growth of the tadpoles. They are first provided with external branchiæ which are soon lost, and the internal gills are developed; these are in turn absorbed and, the lungs developing, the young toads are gradually forced to seek air above the surface of the water. They then rapidly assume their perfect form, leave their aquatic life and become terrestrial animals. To-day we have seen myriads of young toads undergoing this important change, and these young will probably remain along the damp margin of the pond until a warm rain comes, which will induce them to wander off, and, as in the course of their march they will possibly be seen by persons, perhaps in the act of crossing a street or garden, it is very likely that we shall hear of another instance of "toads raining down."

Mr. Putnam, in his remarks upon the fishes, confined himself to the structure of the skeleton, pointing out the homologies of the various bones with those of higher animals, and the adaptation of the fish structure to the special purposes for which it was designed.

Mr. PUTNAM stated that since the Amesbury Field Meeting he had received from Capt. J. A. Greely, of Amesbury, a drawing of an Indian knife which differed in details somewhat from any that he had mentioned in a former communication to the Institute (see p. 111). This knife was said by Capt. Greely to be made of "red slate." It is nearly perfect, one end only being broken off, as shown in the figure. Allowing for this missing



Knife made of "red slate" from Kingston, New Hampshire. One-half natural size. Side view and section.

fragment the knife was about seven inches long; the back is three-quarters of an inch deep and the blade about one and one-half inches. The thickness of the blade in the centre is about three-tenths of an inch. The peculiar workmanship of the back, as shown in the section, in the form of a series of uneven knobs, was probably intended to give firmness to the hold when grasped by the hand. This specimen was found in a sand deposit near Kingston Falls, Kingston, New Hampshire. The figure, which is from the drawing of Capt. Greely, represents the knife of half its size.

The PRESIDENT read the following communication from N. Cleaveland, Esq., in connection with the presentation of the herbarium therein referred to, and several specimens in mineralogy collected near Erzroom in Asia Minor :—

"The collections and insertions in this herbarium were begun by OLIVER ALDEN TAYLOR in 1824, he being at that time a student in Union College, Schenectady. It was by the advice of Dr. Yates and for the benefit of his health that he engaged in botanical study and pursuits. The taste and habits then formed continued through life, as the entries in this hortus siccus abundantly show. In Andover, where for many years he lived a laborious student-life, in Manchester, Mass., where his last years were spent in faithful pastoral work, and in every journey that he made, he seems to have kept up the practice of observing, collecting and examining plants.

The book is presented to the Essex Institute, not as containing anything of special interest for scientific men, but as a curious record of painstaking study and care on the part of one who was always earnestly devoted to other researches, and eminently successful in them. To any who may chance, hereafter, to glance at these dry leaves and stems and flowers, and who may never before have heard of him who gathered and placed them here, let me say that the Rev. Mr. Taylor was not only an amiable and good man, but distinguished, also, for varied learning and great philosophical attainments. In evidence of this it will be sufficient to state that he at one time acted as assistant professor of Biblical Literature in the Andover Divinity School, and that the celebrated Edward Robinson, when contemplating a long absence from his post, for European and Asiatic travel, earnestly requested Mr. Taylor to fill his place in the department of Biblical and Oriental learning at the Union Theological Seminary of New York. Mr. Taylor died (1851) at Manchester, Mass."—N. C.

These mineralogical specimens were sent in 1845 from

Erzroom in Asia Minor by Rev. Jonah Peabody to Rev. O. A. Taylor. Mr. Peabody, a native of Topsfield, Essex County, Mass., was then living at Erzroom, as a missionary of the American Board.

In Mr. Taylor's Journal (See Memoir of Rev. O. A. Taylor, p. 402) he mentions the receipt of the present, thus:—"To my wife was sent a bottle of water from the Euphrates; to me lava one thousand years old from near Khoy; marble from the Chifte minaret; lava from Hassan Kulaah, or, as is supposed, the ancient Theodosiopolis; lava from near the base of Mt. Ararat."

Rev. E. C. BOLLES, of Salem, said that in dredging in Humphrey's Pond he had found only four species of shells. This pond is very free from animals, and it contains less parasitic life than usual. The dredge brought up only one form of vegetable life in profusion—that being one of the green globular algæ, each specimen of the size of a buckshot. He then alluded to certain forms of sponges found in the pond, and of the different varieties, the horny, flinty and limy sponges. Sponges are animals, and he explained how they lived, the system of circulation by which they are sustained, and the progress of their growth. The examples from this pond were all of the common *Spongilla fluviatilis*, and exhibited not only the green porous structure of the sponge, but the embedded gemmules, which in time would float out upon the water, and each one would attach itself to some object and develop into the characteristic green mat of the spongilla. The fresh-water sponges have been made a special subject of study by Mr. Carter, an Englishman living in India. Great masses of spongillæ of various species are to be found in the fresh-water tanks in Bombay and other East Indian cities.

Mr. JOHN ROBINSON, of Salem, the Recording Secretary, exhibited and explained some specimens of the wild flowers and ferns that had been gathered, and also made commendatory reference to the fig and pomegranate trees grown by Gen. Josiah Newhall. In explanation of the growth of figs, he said that it was an error to suppose that they had no blossoms, for great numbers exist, though of small size.

Rev. S. H. TAFT, president of Humboldt College, Humboldt County, Iowa, on being called upon, expressed his pleasure at being here, and also at seeing so large a representation of the Essex Institute at his college in Iowa, on the occasion of the meeting of the American Association for the Advancement of Science at Dubuque last year.

Gen. JOSIAH NEWHALL, of Lynnfield, being called upon, spoke of the general situation of the town, with particular reference to its water facilities.

Mr. N. A. HORTON, of Salem, after making some remarks upon the day and the unusual heat, gave a brief résumé of the rambles of his party, and offered the following resolution, which was unanimously adopted:—

*Resolved*, That the thanks of the Essex Institute be tendered to Gen. Josiah Newhall, Messrs. J. B. C. Fuller and Joseph Brown for their courtesies and attention during the day; to Mr. G. Saltonstall for the use of his boats; and to the Congregational Society for the use of their church.



# BULLETIN

OF THE

## ESSEX INSTITUTE.

---

VOL. 5. SALEM, MASS., AUGUST, 1873.

No. 8.

One Dollar a Year in Advance. 10 Cents a Single Copy.

---

### FIELD MEETING AT CHEBACCO POND, TUESDAY, AUGUST 12, 1873.

By the kind invitation of Messrs. J. Whipple & Sons, who have for more than ten years successfully kept the Chebacco House at this place, the Institute held a field meeting, this day, in this rural retreat which has grown in public favor and has become quite celebrated for its great beauty and general attractiveness. The particular charm of the place, however, to many people who have a taste for natural scenery and productions, is in spending a quiet day here in small parties. The winding road through the woods, which leads to the place, is very attractive. The ponds, five in number, abound in fish and pond lilies. All the ponds are quite deep and afford good boating places, but the boats are generally concentrated on Chebacco Pond, which lies partly in Essex and partly in Hamilton. This is a large sheet of water, and its many

indentations render it very attractive to sailing parties and amateur explorers. The place is also one of great interest to the students of our local botany.

In point of numbers the attendance at the meeting was unusually large, and a number of persons proficient in scientific pursuits were present and consequently a great amount of scientific work was performed in the gathering of zoological and botanical specimens and a greater and better variety has seldom been collected.

The meeting was called to order by the **PRESIDENT**, on the platform in the grove, at a quarter before two o'clock, and the **Secretary** read the proceedings of the meeting at Lynnfield.

The **SECRETARY** announced the following correspondence:—

From H. W. S. Cleveland, Chicago, Ill., Aug. 6; Charles F. Crocker, Lawrence, Aug. 11; Charles B. Rice, Danvers Centre, Aug. 13; John J. Somes, Gloucester, July 29; American Geographical Society, July 21; Christiana, Det. Kgl. Norske Universitet, Janvr; La Société Royale des Sciences et des Lettres de Throndhjem.

The **LIBRARIAN** reported the following additions:—

*By Donation.*

CROCKER, CHARLES F. of Lawrence. History of Lawrence. 1 vol. 8vo. Lawrence, 1868. Catalogue of the Lawrence Public Library. 1 vol. 8vo. Lawrence, 1873. Anniversary Services of the Grace Church, Lawrence, Oct., 8, 10, 11, 1871.

MILLS, R. C. Nation for 1869, 1870, 1871, 1872. The Week for 1868.

SAUNDERS, Miss. Nuevo Testamento. 1 vol. 12mo. Conquest of Mexico. 2 vols. 8vo. Dictionary of the Spanish and English Languages. 2 vols. 8vo. Ai Vola Ni Veryalayalati Vov ni Anda Twaga kei Na Nodai Vakabula Ko Jisu Kraisita. 1 vol. 12mo.

U. S. PATENT OFFICE. Official Gazette, July 15, 1873.

WILLSON, E. B. Miscellaneous pamphlets, 14.

*By Exchange.*

BUFFALO SOCIETY OF NATURAL HISTORY. Bulletin of. Vol. i, No. 2.

IOWA STATE HISTORICAL SOCIETY. The Annals of Iowa for July, 1873.

KONGELIGE NORSKE VIDENSKABERS-SELSKABS IN THRONDHJEM. Skrifter i det 19de Aarhundrede 7de Bind 1ste Hefte. 8vo pamph.

PHYSIKALISCH-MEDICINISCHE GESELLSCHAFT IN WÜRZBURG. Verhandlungen Neue Folge, iv Bd., i Hefte. 8vo pamph.

SOCIÉTÉ VAUDOISE DES SCIENCES NATURELLES IN LAUSANNE. Bulletin, Vol. xi. No. 68. 8vo pamph.

UNIVERSITÉ ROYALE DE CHRISTIANIA. Forhandlinger i Videnskabs-Selskabet Aar, 1871. 8vo pamph. Animal Life, by Geo. O. Sars. 4to pamph. Forekomster af Kise i Norge, by A. Helland. 8vo pamph. Anden Beretning von Ladegaardsens Hovedgaard, Forse Hefte. 4to pamph. On the Rise of Land in Scandinavia, by S. A. Sexe. 8vo pamph.

PUBLISHERS. Gardener's Monthly. Gloucester Telegraph. Haverhill Gazette. Ipswich Chronicle. Lawrence American. Lynn Reporter. Lynn Transcript. Medical and Surgical Reporter. Nation. Nature. Peabody Press. Sailors' Magazine and Seamen's Friend. Silliman's Journal.

The PRESIDENT in his opening remarks alluded briefly to two ranges of territory located in the southern part of Essex County, favorable for the pursuit of the naturalist, and more especially of the botanist. One is a tract extending inland from the shores of Swampscott and Marblehead, and lying within the limits of Marblehead, Swampscott, Lynn, Salem, Peabody and Lynnfield, very diversified with rough and craggy hills, bowlders, beautiful ponds, woods and meadows, the habitat of many rare floral gems; with this tract is associated the name of Dr. Andrew Nichols, who was one of our most noted local botanists. He delivered a course of lectures on botany as early as 1816, and was the first President of the Natural History Society. He died in the spring of 1853, as the little *Draba verna*, a plant he took delight in finding, was expanding its tiny petals to another vernal season. The other is the range of woods in which we are now assembled, extending from Beverly to Gloucester and lying within the limits of these and the intermediate towns. Here are found many rare plants, as the Magnolia, Kalmia, Linnea, Cornels, etc. These woods may be considered, to an Essex County botanist, hallowed ground: here Dr. Cutler, some ninety years since botanized, and prepared in 1784 "An account of some of the vegetable productions naturally growing in this part of America, botanically arranged," which was printed in the first volume of

the "Memoirs of the American Academy of Arts and Sciences." He also formed an arboretum of considerable extent adjoining his residence, and may be considered as one of the pioneers in botanical science in this country. He died July 28, 1823, having enjoyed in an eminent degree the confidence and honor of his fellow men. Dr. George Osgood of Danvers, as a pupil and friend of Dr. Cutler, may be mentioned in this connection. He was present at a meeting in this place some thirteen years since, and alluded to his residence in Hamilton about the beginning of this century, to his rambles through these woods with the venerable Cutler, from whose lips he learned his first lessons in botany and the study of nature, and during a long life had continued his interest in these pursuits, having derived from them much pleasure, happiness and instruction. He died May 16, 1863, at the age of fourscore. Dr. Osgood always spoke with much pride of the late William Oakes as once his pupil, who was wont to accompany him in his rambles and from him imbibed a taste for, and soon eclipsed his old instructor in botanical attainments. Mr. Oakes was a resident of the old town of Ipswich, and made extensive collections of plants gathered in these woods, and the name of Manchester had become famous as a botanical region, from being attached to the specimens which he preserved and so widely distributed.

The President then alluded briefly to some of the pleasing associations that cluster around this place. He spoke of an informal gathering of several members of the Natural History Society in July, 1836, when Benjamin Hale Ives, a very enthusiastic student of nature, was present and took a very active part in all the proceedings. By him more perhaps than by any other was the foundation laid upon which the present superstructure of our

organization has been erected. He died on the twenty-sixth of the January following, at the age of thirty. At a meeting in 1850, a few members, consisting of Drs. A. Nichols and George Osgood, and Messrs. S. P. Fowler, Thomas Cole, George D. Phippen and others made explorations to collect specimens and then met in the parlor of the old farm-house,\* that stood on the site of the present Chebacco House, to talk over such scientific topics as the occasion might have suggested. He also spoke of the meetings in 1860 and 1862. On these two occasions our friend Hon. Allen W. Dodge, who is with us this day, presided, and cordially welcomed the members and their friends to the town of his adoption. The numbers in attendance were large, and the meetings were very successful.

The President then introduced Mr. GEORGE D. PHIPPEN, one of the early members of the Natural History Society, who was present at the early meetings of the society in this place, and has always taken a great interest in its proceedings.

Mr. PHIPPEN then came forward and made further reference to the early explorations referred to, and alluded to the progress made in science not only from the early times of Winthrop, but through the influence of meetings such as these. He considered Dr. Cutler the first botanist who was indigenous to the soil, but he referred not only to him but also to the late Dr. George Osgood of Danvers,

---

\*The house was a good specimen of the farm-houses of the last century, one story, gambrel roof in front and lean-to in the rear, running down near to the ground. In the open lawn in front was the well with a long well sweep; around and near it stood four ash trees, planted there, saith tradition, to keep the snakes from the well. It was known as "Knowlton's," being owned and occupied by an elderly lady of that name. Small parties frequented the place, bringing with them their own supplies. Mrs. Knowlton would prepare the repast, and a small fee and the remnants of the feast were considered an ample compensation.



and others with whom he had himself rambled and pursued botanical investigations.

The President then called upon Hon. ALLEN W. DODGE of Hamilton, to tell the company what he knew about the Rev. Manasseh Cutler.

Mr. DODGE said that Mr. Cutler was the second minister of the Hamlet Parish, as it was called at the time of his settlement, in 1771, it being a part of old Ipswich, from which it was set off in 1793, and given its present name, in honor of Alexander Hamilton, of whom the doctor was an ardent admirer,—his parishioners sharing in his feelings. Of the doctor, personally, Mr. Dodge said his reminiscences were rather dim, but he well recollected hearing him preach in his own pulpit, after he was compelled to sit through the sermon, as he did for years, owing to the asthma. He also remembered him at a large social gathering of the Col. Robert Dodge family, to which he (Mr. Dodge) belonged, when the doctor was the life of the party. It was at the same ancestral farm that witnessed these festivities that, at an earlier period, on the occasion of a barn-raising, the doctor led off a dance on the green with one of his church members, grandmother to the speaker, against which neither tradition nor the church record bears traces of any remonstrance. He was, in truth, always ready to contribute to the innocent recreation of his people, ready to minister to their wants, physical as well as spiritual, and ready to make the common schools of the town preëminently thorough in their instruction. To interest the people in the schools, he early instituted the custom of each committee-man giving either a dinner or a supper at every examination day; and on these occasions the doctor made even the roast turkeys and plum puddings to help on the good cause.

To show how free and familiar with him were his own people, one of them having written a work on the cultivation of the potato, and taken it to him for revision, said as he was leaving the house, "Now, doctor, if you think it worth printing, just stick in a little religion, now and then, and it will sell all the better!" Grotesque as this may seem to us, it was strictly in accordance with the times. That rare little book, by Dr. Jared Elliott, of Killingly, Conn., entitled "Field Husbandry in New England, as it is, or may be ordered," is interlarded with Scripture texts. As a specimen, after giving various receipts relating to the protection of crops and animals, he says he shall close the chapter with one receipt more, which is infallible and invaluable: "Seek first the kingdom of God and His righteousness, and all these things shall be added unto you."

Doctor Cutler was born in Killingly, Conn., May 3, 1742 (where Elliott, the author of this quaint old work, lived, preached and wrote); graduated at Yale College in 1765. He studied law and was admitted to the bar in 1767. Soon after quitting this profession he prepared for the ministry, and here entered on its duties, his first and only charge extending over a period of more than fifty years. Of course he lived in the war of the Revolution—the time that tried men's souls—and he served in it as a chaplain. On his return he studied medicine and practised as a physician among his parishioners for years after. As a preacher he was sound and instructive, not given to flights of oratory, but more intent on the edification of his hearers. He was a prompt man in the discharge of ecclesiastical as well as secular duties. Once, at a meeting of the Bible Society of Salem and its Vicinity, a question arose at the preliminary meeting, whether or not it should be opened with prayer.

The discussion began to wax warm, when the doctor, who was presiding, rapped on the desk and said, "Gentlemen, while the propriety of the duty is being discussed, the duty itself might have been performed. Let us pray!"

He received as boarders in his family, young men from out of town to fit for college, mercantile pursuits and navigation. He was well versed in astronomy, and for years kept a minute diary of the weather, the temperature, the winds, the diseases and the seasons, a couple of these manuscripts from 1780 to 1790, being among the archives of the Institute, witnesses of his painstaking accuracy in this department. But he was best known to his contemporaries by his knowledge of botany, both practical and scientific. He contributed to the *Memoirs of the American Academy*, papers on this and other scientific subjects. He was well known abroad, and his society and conversation were sought by many an intelligent foreigner. Among others was Count Castiglione, a distinguished Italian, who travelled in this country in 1785-7, and in his book speaks of his visit to Dr. Cutler. Doubtless he roamed with him through these woods, guided by him to rare and beautiful plants. The doctor's garden was full of flowering plants and trees. Among the rest was a grand old tulip tree, that lived to show, spring after spring, by its gorgeous blossoms, the worth of such a man, not to distant places only, but to his neighborhood as well, long after he had gone to his rest.

The efforts of Dr. Cutler in securing the passage by Congress of the ordinance of 1787, by which freedom was decreed to the whole northwestern territory, are perhaps not so fully known as in justice to him they should be. Mr. Webster was accustomed on all fit occasions to speak of them in terms of highest commenda-

tion. More recently, Mr. Poole, of the Cincinnati public library, has given a graceful and thorough account of them. Soon after, he organized, in Ipswich and the neighboring towns, the first band of pioneers for the settlement of Ohio. They took their departure from his door in a large wagon, bearing the inscription "Ohio, for Marietta on the Muskingum," firing a salute to the doctor with the muskets with which they went armed. They were followed the year after by Dr. Cutler himself, who rode all the way in a sulky, accompanied by a few friends.

In 1800, in acknowledgment of his signal services to the country and his vast acquaintance with men and affairs, he was chosen a representative to Congress. He served two terms in this capacity, his people at home willingly acquiescing in an arrangement that was so honorable to the man whom they loved and revered. It was on his visit to Philadelphia in 1787, while the Constitutional Convention was in session and while he was negotiating for the purchase of the Ohio lands, that he stopped at the house of Dr. Franklin, with whom he had corresponded, and found him at tea with his family on the lawn in the rear of the house. Of this interview he wrote out a full account. It is said to contain the best description of the great philosopher and statesman, both of his personal appearance, manners and dress, that has come down to us. It is copied by Sparks, in his life of Franklin, and is well worth the reading by every one who would get a most striking picture of him. But, said Mr. Dodge, the whole subject is too fascinating to be disposed of in a few brief remarks. He hoped that a full account would be given by one who had for years been gathering the materials for it, and was abundantly able to do justice to it—he alluded to the Rev. Edwin M. Stone, of Providence, R. I., formerly of Beverly in this county.

Prof. ASA GRAY, of Harvard College, in speaking of the flowers about us and those found during the morning, alluded to plants having peculiar properties or aptitudes, and particularly treated of the so-called pitcher-plant (*Sarracenia purpurea*). One will ask what these pitchers are for, and looking into them we shall find a little dirty water and few or many flies or other insects drowned in it; now if we notice this "sun-dew" (*Drosera*), we shall see that flies, when they alight on the leaf, are caught and held fast by the clear drops which tip every one of the bristles that beset its upper surface. And, as if to make sure of this, within a few hours the surrounding bristles, which the fly had not touched, bend in one by one, and bring their sticky glands into contact with the fly, thus multiplying the bands that held him. Soon the leaf itself is seen to close round the insect, just as a man might close his hand, say upon a mouse. Now, before we make up our mind that this capture is accidental and meaningless, it is as well to consider why flies are more expeditiously caught by a near relative of the sundew, viz., the Venus-fly trap (*Dionæa*), of North Carolina. Here, when the fly alights on the leaf the two sides come together with a sudden motion; and the bristles, which are all on the margin, and destitute of sticky glands, by their intercrossing prevent escape, until the sides of the trap have closed down firmly upon the imprisoned insect.

Returning now to our pitcher-plant, it is naturally asked, What attracts the flies that are so copiously drowned in the water at the bottom? In this our northern species we know of no attraction beyond the water itself. But in at least one of the southern species (*Sarracenia flava*) a correspondent informs us that he has noticed a sweetish secretion just over the top of the tube, which is eagerly



sought by flies, and which intoxicates them, so that they fall into the pit below. Once there, the stiff hairs of its lining, which, as in the species before us, all point downwards, prevent all return. Dr. Gray had this summer verified this statement as to the existence of the attractive secretion. Now in the case of the *Dionæa* the fly, after being caught, is *soon covered with a secretion from the inside of the leaf, and finally absorbed*, except the tough and fibrous parts: then the leaf opens and may catch another fly. Reasoning from this to the sundew, it may be inferred that this also catches flies with intention, and it may be suspected that either the juices of the fly are absorbed through the sticky glands, or that the ammonia etc., which is given off in decomposition is absorbed,—in either case affording food to the plant. And finally, if pitcher-plants are contrivances for catching insects, as they seem to be, Dr. Gray thought it most likely that the water they contain, charged as it is with the products of animal decomposition, is actually absorbed by the plant as a liquid manure, to its benefit.

S. B. BUTTRICK, of Salem, presented the following list of plants collected during the forenoon's excursion:—

*Nemopanthes Canadensis*, . . . Mountain Holly.  
*Verbena hastata*, . . . . . Vervain.  
*Myrica Gale*, . . . . . Dutch Myrtle.  
*Aspidium marginale* and others, Shield Fern.  
*Rhexia Virginica*, . . . . . Deer Grass, or Meadow Beauty.  
*Eriocaulon septangulare*, . . . . Pipewort.  
*Lycopodium lucidulum*, . . . . .  
*Aralia hispida*, . . . . . Bristly Sarsaparilla.  
*Gerardia maritima*, . . . . . Seaside Gerardia.  
*Cornus Canadensis*, . . . . . Dwarf Cornel.  
*Lycopodium dendroideum*, . . . Ground Pine.  
*Spiræa tomentosa*, . . . . . Hardhack; Steeple Bush.  
*Spiræa salicifolia*, . . . . . Meadow Sweet.  
*Monotropa uniflora*, . . . . . Indian pipe.

<i>Decodon verticillatum</i> , . . . . .	Swamp Loosestrife.
<i>Pontederia cordata</i> , . . . . .	Pickereel Weed.
<i>Brasenia peltata</i> , . . . . .	Watershield.
<i>Nymphæa odorata</i> , . . . . .	Water Lily.
<i>Clethra alnifolia</i> , . . . . .	Sweet pepper Bush.
<i>Cassandra calyculata</i> , . . . . .	Leatherleaf.
<i>Cephalanthus occidentalis</i> , . . .	Buttonbush.
<i>Vaccinium occycoccus</i> , . . . . .	Cranberry.
<i>Sarracenia purpurea</i> , . . . . .	Sidesaddle Flower.
<i>Drosera longifolia</i> , . . . . .	Long-leaved Sundew.
“ <i>rotundifolia</i> , . . . . .	Round-leaved “

Prof. GEORGE L. GOODALE, of Harvard College, after a few brief remarks on several of the plants which he had noticed during the forenoon's ramble through these woods, so rich with floral treasures and possessing so many attractions not only to the student in botany but the lover of the picturesque in natural scenery, gave an interesting account of the cross fertilization of plants by the agency of insects.

Mr. J. J. H. GREGORY, of Marblehead, expressed a desire to bring to the notice of the Institute the importance of teaching children the distinctive characteristics of the several poisonous plants and animals that are occasionally met with in their rambles; after some general remarks on this subject, he introduced the following resolution, which was adopted:—

*Resolved*, That so much instruction relative to insects, other animals and plants found in Massachusetts, should be given in her common schools, as shall enable the community to protect itself from bodily harm and banish all unnecessary fear.

# BULLETIN

OF THE

## ESSEX INSTITUTE.

---

VOL. 5.                      SALEM, MASS., SEPT., 1873.                      No. 9.

One Dollar a Year in Advance. 10 Cents a Single Copy.

---

### FIELD MEETING AT CHEBACCO POND, TUESDAY, AUGUST 12, 1873.

[Continued.]

MR. F. W. PUTNAM spoke on the fishes of the pond and gave an account of the general structure of fishes, and of the characteristic habits of several species, especially noting the mode of spawning of the horned pout and the bream, and the care which the pouts take of their young for some time after they leave the spawning nest.

The fishes taken with the seine by himself and Mr. Cooke during the morning consisted of the following species :—

*Pimelodus catus*, Horned Pout, not fully grown; *Esox reticulatus*, Pickerel, not fully grown; *Leuciscus Americanus*, Shiner, adults and young specimens about one inch in length; *Leuciscus pulchellus*, Chub, young specimens; *Perca flavescens*, Perch, adults and half-grown specimens; *Labrax rufus*, White Perch, adults; *Pomotis vulgaris*, Bream, adults, and young of from one-half to one inch in length; *Hololepis fusiformis*, Little Darter, adults.

A few other species, as the redfin, the sucker, the barred bream, the short-nosed pickerel, the banded minnow and the eel, are found in the pond, but none were taken to-day. The black bass has also been introduced and is said to be increasing in numbers.

Of the reptiles and batrachians the following were collected in the pond and on its shores :—

*Chrysemys picta*, Yellow-bellied Turtle; *Ozotheca odorata*, Musk Turtle; *Rana fontinalis*, Green Frog; *Rana sylvatica*, Wood Frog; *Bufo Americana*, Common Toad, young specimens near the water.

Other species are also found here, as the snapping-turtle, the spotted turtle, several snakes, salamanders, three or four other frogs and the tree toad.

Three hauls of the dredge were made across the pond, but the bottom proved very muddy and only a few fresh-water clams were obtained.

Quite a number of aquatic insects were collected, of species common to our ponds.

A large green caterpillar was passed to the table, and Mr. Putnam gave an account of its habits and the transformations it would undergo in developing from its present state, when it is known as the tomato worm, or larva of *Sphinx quinquemaculata*, to that of its winged condition, when it would become a large moth.

After passing a vote of thanks to Messrs. John Whipple & Sons for the use of their grounds, and for courtesies and civilities extended on this occasion, the meeting adjourned.

FIELD MEETING AT DANVERS CENTRE, FRIDAY,  
SEPT. 5, 1873.

THE fourth field meeting, the present season, was held at Danvers Centre, this day, postponed from the day preceding on account of unfavorable weather. The 9.25 train from Salem took the party to the Plains, where carriages were soon in readiness for conveyance to the meeting house, which was the place of gathering for the day. A somewhat informal meeting was then held, and the various points of interest designated, and then the party separated into groups and went in various directions, as inclination dictated; the botanists repaired to the woods; the larger portion, however, under the lead of very instructive guidance, visited several of the old houses that are invested with an historic interest; or the sites of others that had long since crumbled into dust, marked by a depression of the earth, with a few loose stones lying around.

The meeting house in which the party assembled is the one which accommodates the church and society that began in the year 1671, having been set off from the First Church in Salem at that time, and known in our early records as the Salem Village Church. The first house was built in 1671, and was connected with the witchcraft delusion and witnessed many of its trials. The second one was erected in 1700 upon the site of the present house, and stood until 1785, when it was voted to build another upon the same spot. This third house was destroyed by fire, Sept. 24, 1805. The society decided to have a new meeting house, which was built upon the same spot that the last house stood upon. This fourth house was of brick and was known as the "Brick Meeting



House." It was finished in 1806, and taken down in 1839, and in that year the fifth and present house was built. Rev. Charles B. Rice, the present pastor, was installed Sept. 2, 1863. His predecessors were James Bailey, 1671 to 1680; George Burroughs, 1680 to 1683; Samuel Parris, 1689 to 1696; Joseph Green, 1698 to 1715; Peter Clarke, 1717 to 1768; Benjamin Wadsworth, 1772 to 1826; Milton P. Braman, 1826 to 1861—a list of revered and honored names of men who, in their times, were distinguished for their learning and piety.

The general aspect of the town is rather level, though it is diversified with numerous elevations. The land appears to be well adapted to agricultural purposes, and is dotted with workshops of the manufacturing industries that add so much to the thrift of many of our New England towns.

The common at Danvers Centre is a place of some interest, from the fact that it was given to the village "for a training place forever," by the will of Nathaniel Ingersoll, the leading man of the village. It has doubtless been used as a parade ground from the earliest times; and the rudiments of military practice have probably here been imparted to those who have taken up arms against the Indians, the French and the British.

Danvers has, from the earliest times, been closely identified with the prominent events in our history. With the exception of the town most directly concerned by locality, it gave up more victims than any other in the Lexington fight. It was the abode of the first and also of the last British governor of Massachusetts. The Collins House, now owned by Mr. Francis Peabody, has been greatly improved by him without disturbing the old fashioned aristocratic appearance of the place, and is always an interesting object of contemplation, partly

from the beauty of its surroundings and partly from the fact that it is the place where Gov. Gage formerly had his headquarters. Gen. Gage, before he took command of the British forces in the colonies, was governor of Montreal. He did not succeed well as governor of Massachusetts, and went back to England before independence was declared, though he had enough to do with the inauguration of our revolution to set on foot the expedition which resulted in the battle of Lexington. He lived long enough to see our independence acknowledged, and died in 1787, the year when our present constitutional form of government was adopted. Gov. Endicott came over, the first governor, in 1628, and, on April 30, 1629, he was elected governor for one year; but, meantime, the charter and Company were transferred to New England, and John Winthrop, who had joined the Company, was elected governor six months afterwards. Gov. Endicott resided at what is now Danversport, and Gov. Gage, at the Collins house, as above stated, though it was but a temporary residence.

But the section of the town where the meeting was held is especially interesting from the fact that it was the region where most of the "Salem Witchcraft Delusion" took its rise. The first meeting house of Salem Village stood not many rods from the present structure, on Hobart street, near the house of Mr. Hiram Hook. The first minister of the Salem Village church was James Bailey, and he lived in a house occupying the site where now stands the house of Mr. Benjamin Hutchinson near the old road leading from the old meeting house to the Plains, and not far from the Tapleyville village. On this same road, not far from the Plains, and near the gravel pit, may still be seen the remains of the old cellar of the house of Nathaniel Put-

nam, who figured during the witchcraft period. It was one or more of his horses that George Jacobs, Jr., was charged with drowning, though with no very conclusive evidence, as the horses were trespassing, and were probably drowned while being driven away. With reference to Mr. Bailey, the first minister, it may here be said that great opposition arose to him during his ministry, and a series of serious troubles, jealousies and hard feelings followed.

The Samuel Parris house stood upon a piece of land now owned by Messrs. E. and A. Mudge, and was formerly a part of the parsonage. The place is marked by a signboard which bears this inscription: "Site of the first parsonage house occupied by Rev. Samuel Parris in 1692." It is believed that some of the material of which this house was built was put into a shed or outbuilding connected with the old Wadsworth house, which is on the main road, and not far distant. It has been supposed that the small building standing opposite and near to the Collins house was a part of the old Parris house; but this has been well ascertained not to be the case in the sense in which the identity has heretofore been understood. While the small building referred to was a part of the Parris house, it was an addition to that structure which was not put on until full forty years after the witchcraft delusion. The building is old, and is now used by its owner, Mr. Solomon Morrison, as a residence for one cow and several pigs.

Near to the house of Samuel Parris is a ridge of land of curious geological formation, known as "Watch House Hill." This is so called, because, in the early days of the settlement, a house was erected here from which a watch was kept in anticipation of Indian raids.

The Rebecca Nourse house is one of the oldest in town.

It is situated, some distance in the field, on the Salem road leading out from Tapleyville, and is quite near the carpet factory. It is now owned by Mr. Orrin Putnam, and remains in a good state of preservation. There is an orchard in front of it, an inclosed burial lot twenty or thirty rods to the west, and the surroundings indicate quite a thrifty farm.

At Samuel Parris's house, for a year preceding the breaking out of the delusion in full force, a circle of girls met and practised the arts of fortune-telling. Among these were Mary Walcott, Mary Warren and Ann Putnam. Mary Walcott, who was a daughter of Jonathan Walcott, lived at the time in a house on the field northeast of the common, now owned by Mr. Moses Prince.

One of the pleasant drives during the day was that which a small party took in company with Mr. Mudge and Mr. Wm. R. Putnam. It extended through the fine estate of Mr. George Peabody, which is one of the most attractive in this part of the town, over the Newburyport turnpike to the farm of Mr. Francis Dodge on Hathorne's Hill, and thence down upon the other side to Mr. Wm. R. Putnam's house, which is historically distinguished by something more creditable than witchcraft, namely, as being the birthplace of Gen. Israel Putnam, of French war and revolutionary fame.

Hathorne's Hill is put down on some of the county maps as Prospect Hill, though Dodge's Hill is perhaps as familiar a designation as any in the neighborhood. We do not know how many hills there are in Essex County, each claiming to be the highest, but this certainly is spoken of as the highest in the southeast part of the county. It commands a very wide and extensive prospect of the surrounding country, including all the neighboring towns and villages, Wachusett, and a number of the

prominent mountains in the southern part of New Hampshire. The vessels and islands of the harbor can be seen, and the venerable Mr. Samuel Preston informed us that he has counted over fifty church steeples from this summit. The farm which includes this hill was part of the old Hathorne grant, that originally came down to the brook which runs through the Peabody farm. It has been successively owned by Mr. Ray, Eben Porter, James Prince, Nathaniel Ingersoll (son of Capt. Jona.), Capt. John Andrew (who built and owned Mr. James O. Safford's present mansion near the common, in Salem), Capt. Stephen Wilkins, John Dexter (who came from Essex), and Francis Dodge, the present owner and occupant. Mr. Dodge married a daughter of Samuel Preston, and sister of Miss Harriet Preston, the authoress. Mr. Preston, who is now eighty-one years of age, was here at the farm at the time of our call, and showed us around with great apparent pleasure, cheerfulness and activity. His room in the farmhouse was very interesting, a fine old English ivy, which extended nearly all the way around the room, claiming special attention. Capt. Andrew, during his ownership, planted a grove of English oaks on this hill, which are now vigorous and thrifty. This farm has recently been offered, with some forty-two acres belonging to Mr. W. R. Putnam, making two hundred acres in all, as a site for the new State hospital for the insane. It is certainly a fine situation.

The Israel Putnam house, at the foot of the hill, is a mansion bearing every mark of comfort, inside and out. The larger portion of the house is not conspicuously old, there being not much left of the original part beyond the portion containing the two rooms which formerly constituted the one in which Gen. Israel was born. The farm descended from Thomas Putnam, to whom it was origi-



nally granted. From Thomas it came to his son Joseph, then to Lieut. David (who was a brother to Gen. Israel), then to his son Israel, then to Daniel, and finally to William R., the present occupant. Mr. Putnam and his sister were very kind in showing the old relics, and the visit was really one of much pleasure. Gen. Israel Putnam is of course remembered as a man who, even in his boyhood and youth, was characterized by a spirit of daring and intrepidity. He was born Jan. 7, 1718, and at the age of twenty-one married Hannah Pope, of Salem, and removed to Pomfret, Conn. He commanded a company during the French war, was Major General at Bunker Hill, and died May 19, 1790, aged 72.

At the roadside, close by the church, stands the old tavern, now a dwelling house, in which the genial widow Smith ministered to the wants of weary travellers, and higher up is the parsonage, which was once used for the same purpose. Every house has its history, and every history finds some willing tongue to publish its wild and thrilling narratives. At the house of the Rev. Mr. Rice, the pastor, are to be found the records of the parish during those troublous times when Bailey and Parris presided over the church, and many quaint specimens of penmanship and rhetorical beauty were noticed on their pages.

At the close of the rambles and examination of the old records, the company gathered in the basement of the church and partook of refreshments. Here tea and coffee were furnished, and the citizens showed a degree of hospitality that was quite commensurate with their courtesies and attentions during the day.

The afternoon session was held in the church at 3 P. M. The PRESIDENT in the chair. Records of preceding meeting read.

The SECRETARY announced the correspondence :—

From Charles F. Crocker, Lawrence, Aug. 15; Pardee & Chamberlin, Fulton, N. Y., Aug. 31; W. F. Poole, Cincinnati, Ohio, Aug. 23; Charles B. Rice, Danvers Centre, Aug. 21; S. J. Spalding, Newburyport, Aug. 30; E. R. Sullivan, Zanesville, Ohio, Aug. 23; E. N. Walton, Salem, Aug. 26; A. Williams & Co., Boston, Aug. 15; Marshall P. Wilder, Boston, Aug. 15; U. S. Bureau of Education, Washington, Sept. 1; Buffalo Historical Society, Aug. 22.

The LIBRARIAN announced the following additions :—

*By Donation.*

APPLETON, FRANCIS H., of Peabody. Miscellaneous pamphlets, 25.  
 LEE, JOHN C. Commercial Bulletin, July 26, Aug. 2, 9, 16, 1873.  
 MORSE, E. S. On the Systematic Position of the Brachiopoda, by donor. 8vo pamph. Boston, 1873.  
 MUNSELL, JOEL, of New York, N. Y. Albany Penitentiary Laws for 1872. 1 vol. 8vo. Miscellaneous pamphlets, 16.  
 PEABODY, ALFRED. San Francisco Directories for 1852-3, 1859. 2 vols. 8vo. Manual of the Corporation of San Francisco, 1853. 1 vol. 8vo.  
 PERKINS, A. T., of Boston. Copley's Life and Paintings, by A. T. Perkins. 1 vol. small 4to. Boston, 1873.  
 RICE, CHAS. B., of Danvers. Centennial Celebration at Conway, June 19, 1867. 8vo pamph.  
 U. S. PATENT OFFICE. Official Gazette, July 22, 29, Aug. 5, 12, 1873. General Index of "The Official Gazette." 1872.

*By Exchange.*

BIBLIOTHÈQUE UNIVERSELLE ET REVUE SUISSE. Archives des Sciences physiques et naturelles, Mai, Juin. Nos. 185, 186. 1873.  
 GEORGIA HISTORICAL SOCIETY. Collections of. Vol. iii. 1 vol. 8vo. Savannah. 1873.  
 PUBLISHERS. American Naturalist. Forest and Stream. Gloucester Telegraph. Hardwicke's Science Gossip. Haverhill Gazette. Historical Magazine. Ipswich Chronicle. Lawrence American. Lynn Reporter. Lynn Transcript. Medical and Surgical Reporter. Nation. Nature. Peabody Press. Western Lancet.

The PRESIDENT in his opening remarks mentioned that this is the first time that the Institute has held a meeting in this spot, so full of historic incidents, some of which are of national importance, although it has convened in three other places in the town.

It possesses some attractions to the naturalist. Within a short distance in one direction is the locality where William Oakes, the noted botanist of Essex County, and

his friend, Dr. George Osgood, of Danvers, discovered the *Vaccinium vitis-idaea* (a species of cranberry), a very rare plant in this section of the state. It is said that after a fatiguing ramble at the close of a summer's day, in the year 1820, in search of botanical specimens, upon the finding of this plant Oakes raised his hands above his head and with all the enthusiasm of an ardent lover of nature exclaimed, "we have found a rare plant that will repay us for our toil." In another direction, near the intersection of the Andover and Newburyport turnpikes, is the place where is found occasionally the rare toad *Scaphiopus solitarius*. We well remember the enthusiasm which our late esteemed friend, Dr. Andrew Nichols, manifested, when conducting us to that place in June, 1843, where a small pond, usually dry in the summer months, was filled with these toads and the tadpoles in the various stages of growth. This toad never appears except under a peculiar combination of circumstances, that only occurs at intervals of several years. Other incidents might be cited of equal interest to the student of nature, but time will not permit a further digression in this direction.

The President then gave a brief review of the work of the society and its objects, which he said was to collect materials for the natural and civil history of the county, and to cultivate a taste for the study of the sciences and the arts, and to promote the general culture of the community.

Mr. F. W. PUTNAM, of Salem, was then introduced, and gave an account of the doings of the recent meeting at Portland of the American Association for the Advancement of Science, and also of the work of Prof. S. F. Baird, as U. S. Commissioner of Fisheries, located at Peak's Island in Portland Harbor the present season, in

carrying out the objects of his mission. He exhibited a sketch of the feather of the ruddy duck, its structure being very peculiar, consisting of two feathers, in fact; the first an odd or deciduous feather, which was pushed up from the flesh by the true feather, in a similar manner to the first teeth of the child, which are pushed out by the second. He said that this was a contribution to science by Dr. Elliot Coues, U. S. A., and that it would be published with a cut in the *American Naturalist*.

Mr. Putnam presented the following paper by Dr. CARPENTER :—

ON THE GENERIC AFFINITIES OF THE NEW ENGLAND CHITONS.

BY PHILIP P. CARPENTER, OF MONTREAL.

It has been common with conchologists, even of the "advanced" school, to call every mollusk with eight valves a *Chiton*, except the vermiform species, which Lamarck separated as *Chitonellus*. The consequence has been that very little is known of most Chitonidæ, except the external characters; the differentiation shown in the soft parts, and even in the shelly valves, having been overlooked.

We have been fortunate, during the explorations of the United States Fish Commission, in observing four species alive; another was taken alive at Eastport last year; a sixth has been captured on the southern coast. These are all as yet known to inhabit the American Atlantic seas, from Labrador to Florida. A seventh, called *Chiton cinereus*, is said to have been taken alive by Dr. Pickering, and to be in the collection of the Philadelphia Academy of Natural Sciences; but it may prove to belong to one of the other species, or to be a ballast specimen.

The six authentic species present well-marked characters, ranging under five genera.

It may be premised that the Lamarckian genus *Chiton* was first divided by the Rev. L. Guilding, according to the external characters of the West Indian species. About the same time, the Rev. T. Lowe published the peculiarities in the insertion plates of the British species. Both papers appeared in the "Zoological Journal." Dr. Gray, however, was the first to present, in the Proc. Zool. Soc., a full description of the forms of Chitonidæ, accurately arranged under genera and sections, partly according to the external, but prin-

cipally according to the internal characters. Mr. Henry Adams, in compiling the "Genera" from H. Cuming's collection, was not allowed to examine the insertion plates. He thought he saw, however, a correlation between the internal and external marks; and accordingly redescribed Gray's genera, with lists of species, according to the surface diagnosis. Gray in his "Guide" unfortunately copied from H. Adams' list without examination. Lastly Chenu, as usual, reproduced the mistakes of H. Adams, with fresh ones of his own.

Having had unusual opportunities of dissecting-out the valves of Chitons, I have felt compelled to rectify the previously published lists, and also to propose various new genera. These I communicated to Mr. Binney, while his edition of Dr. Gould's "Invertebrata" was passing through the press; but he did not think well to alter the position of every one of our species, as I feel compelled to do.

1. The *Chiton apiculatus* does not appear in H. Adams or Gray. It is a true *Chætopleura*; distinguished by the thin hairy girdle, regular valves with sharp teeth, and long series of gills. I have not seen it alive. It ranges from southern Massachusetts to Florida. The genus is for the most part tropical.

2. The *Chiton ruber* is *Leptochiton ruber* of H. Adams; and is probably *Callochiton puniceus* Couth. of the same author. It is the *Tonicia rubra* of Gray's "Guide," to which he adds as synonymes in P. Z. S., *marmorea* and *fulminata*; and it also appears in Gray's "Guide" as *Corephium? rubrum*. It has not the characters of either of these four genera, in which our two best authors have placed it. It belongs to Gray's genus *Ischnochiton* (= *Lepidopleurus* H. Ad., not Risso) section †, "mantle-scales minute, granular;" but as the gill-rows are short, instead of surrounding the foot as in the typical species, it is necessary to establish a fresh genus, *Trachydermon*. The insertion-plates are, as in *Ischnochiton* and *Chætopleura*, regularly slit and sharp all round. Mr. Emerton first observed a great peculiarity in the animal; that there is a cancellated space between the posterior gill and the caudal extremity. Prof. Verrill observed that in different specimens there were either one, two or three rows of holes on each side. The caudal lobe is generally figured as an anal tube, but in truth it is an imperforate muscle, working the posterior part of the girdle. The fæces were distinctly seen to escape, sometimes on one side, sometimes on the other; as it appeared to me, from a slit on each side.

3. The *Chiton albus* is *Leptochiton albus* of H. Adams, = *sagrinatus* Couth. I twice captured a live specimen, but each time it eluded the after-search. I do not doubt that this is also a *Trachydermon*, but cannot vouch for the peculiar characters above quoted. The genus belongs, in the main, to cold and temperate seas.

4. The British *C. marginatus* is also a *Trachydermon* and not a *Lep-*



*tochiton*. It is the *C. cinereus* of Lovèn, Forbes and Hanley; but not of many other writers. Of the unique American shell, so called, I can say nothing.

5. The *C. marmoreus*, common at Eastport and northwards to Greenland, is *Tonicia* of H. Adams and Gray, simply because the girdle is smooth. The true southern *Tonicia*, however, have pectinated insertion-plates and ambient gills, like the typical Chitons; while the northern species, so called, have sharp plates and short gills. They differ in fact from *Trachydermon* simply in the girdle being destitute of the minute scales. I distinguish the group as *Tonicella*.

6. The *C. mendicarius* does not appear in the lists, and is probably unknown in Europe. Fortunately a very few specimens were dredged by the "Bluelight," one of them smashed, but very large. It is known outside by the minute bristles on the girdle; but within it presents the very abnormal characters which had before been observed only in the minute British *C. Hanleyi*. This appeared as *Leptochiton Hanleyi* in Gray's first paper, but as *Acanthopleura Hanleyi* in his "Guide," p. 183. But in the same book, p. 186, the same species reappears as *Hanleya debilis*; the genus (constituted for that species alone) being said to have lateral tufts of spines; insertion plates entire, of terminal valves alike. H. Adams, following this diagnosis externally, described other species which really had these spine-tufts, though not the internal characters. However, on examining every specimen of the species in the market, I could not discern a single spine-tuft, though announced by the accurate Lovèn. I found, however, excellent internal characters. All the valves were destitute of insertion plates, except the anterior one, which really was entire, having one continuous plate, not slit. I did not know whether to believe my own eyes, or the testimony of Lovèn and Gray, till Prof. Verrill allowed me to open the large smashed specimen of *C. mendicarius*. It proved to be a true *Hanleya*, according to my diagnosis, but not according to Lovèn and Gray. I presume that the contraction of the skin, in so minute a shell, led to the appearance of tufts, and that Dr. Gray supposed that the posterior valve had an entire plate like the anterior. I should be glad of the opinion of others, whether the genus *Hanleya* should follow the type against the diagnosis, as here given; or an unreal diagnosis against the type, as followed (in part only) by H. Adams. The animal of this species resembles *Leptochiton* in having short posterior gills, and a central anal tube from which the faeces were seen to exude.

7. A similar confusion attends the last and most remarkable species, *C. Emersonii*. Several live specimens were dredged by the Bluelight, one of extraordinary size; and still more have been dredged by Pl. Dawson at Murray Bay. For the original species, *C. vestitus*, from

Alaska, a genus *Amicula* was constituted by Gray, characterized by covered valves and regular pore-tufts. The elder Sowerby figured the *Emersonii* as *vestitus* in his Conch. Illustr. Hence Dr. Gould naturally looked for the pore-tufts, and found them. Having received a fresh specimen from Dr. Stimpson, I could not find them. I wrote to Dr. Gould, who sent me his type specimens with sketch of regular pore-tufts, as he saw them; but still I could not. He died without clearing the difficulty; and I presumed there might be two species, one with and one without pores. But after examining both northern and southern suites of specimens, I feel confidence in stating that there are no true pores; but simply a profusion of hair bunches, generally very irregular, but sometimes, in early stages, more conspicuous at the sutures. I propose, therefore, to keep the name *Amicula* for the Alaskan pore-bearing species; and to name this (with the Alaskan *Pallasi*), *Stimpsoniella*, in honor of one of the best naturalists born in New England. In this genus, as in *Trachydermon*, the fæces are expelled through slits close to the caudal lobe, one on each side. When at rest, the creature makes a posterior fold in the girdle, corresponding to the wave in the posterior valve.

I should be extremely indebted to any gentlemen who would lend me unusual Chitons for examination, previously to the publication of my "Contributions towards a Monograph of the Chitonidæ" by the Smithsonian Institution. There is also a great field open for investigation to all those who can examine living chitons, or even dissect alcoholic specimens. It is known that the external characters are not coördinate with the internal ones; it remains to be found out whether either of them correlate with the anatomical characters of dentition, gills, vent, etc., which ought to furnish the best divisions in arranging this difficult group.

The Secretary, Mr. JOHN ROBINSON, gave an interesting account of the botanical work in the morning. His remarks were chiefly confined to a description of the ferns found during the excursion, as follows:—

Among the rarer ferns in this region is *Phegopteris polypodioides*, a fine specimen of which was collected by Miss Page this morning. This and its associate, *P. dryopteris*, are only to be found in a few localities in this county, while north and south they are very abundant, particularly near mountain streams. Of the other New England ferns that are rare, or not as yet found here, may be enumerated *Struthiopteris Germanica*, *Ophio-*

*glossum vulgatum*, *Adiantum pedatum* (maiden hair), *Asplenium thelypteroides*, *Phegopteris hexagonoptera*, *Aspidium aculeatum*, *A. Goldianum*, *Cystopteris bulbifera*, *Lygodium palmatum* (climbing fern), and some species of *Botrychium*. To these may be added as impossible to find, the mountain species, *Aspidium fragrans*, *Woodsia glabella* and the limestone ferns. I know only one locality in this county for the *Ophioglossum*, or the climbing fern; the maiden hair is abundant in one town and can be found sparingly throughout the county. It is very doubtful if *Asplenium thelypteroides*, *Cystopteris bulbifera* or *Aspidium aculeatum*, can naturally grow here, but it is to be hoped that *Aspidium Goldianum*, *Phegopteris hexagonoptera* and the *Struthiopteris*, as well as some of the rarer species of *Botrychium*, may yet be found in some of the beautiful nooks of which our county has so many. For three seasons past I have searched faithfully in this vicinity for the native ferns, and have been rewarded each season by the finding of species not known, or at least not noted by any collector, as indigenous to this county. Nearly all our ferns can be cultivated with success in the garden if a shady portion can be devoted to this purpose. They throw out their beautiful fronds and often hide some unsightly fence, or fill the crevices between stones, with their delicate green foliage.

Rev. E. C. BOLLES, of Salem, in giving his account of the findings during the forenoon, spoke particularly of the minute fungi, which feed upon plants as certain insects feed upon other insects. He illustrated his remarks upon the blackboard, and in closing alluded to the importance of the study of these minute forms, especially to agriculturists, as many of the crops are affected more or less by these parasitic plants.

# BULLETIN

OF THE

## ESSEX INSTITUTE.

---

VOL. 5.

SALEM, MASS., OCT., 1873.

No. 10.

One Dollar a Year in Advance. 10 Cents a Single Copy.

---

FIELD MEETING AT DANVERS CENTRE, FRIDAY,  
SEPT. 5, 1873.

[Continued.]

The PRESIDENT presented the following paper, found among the archives of the Institute :—

“Our Breath’n & Neibours at y<sup>e</sup> ffarmes Request.”

To the respective Towne of Salem.

Wee whose names are vnder writen desire to informe you of our condition by reason or Habytations are distant from our publike Meeting house at least four miles vpon the rode the neerist, the farthist about 8 or 9; if one or two of a great family goeth to meeting, the rest being Children and Servants tarry at home And wee feare spend the day vnprofitably if not pfainly, and in consideration herof wee all judge the afflicted state of y<sup>e</sup> body ought to bee relieved how much more the condition of Soules. Wee feare if not releevd that our Children will bee as the Hethen whome God droue out before vs. Therefore or humble request is that you will be pleased

to take into yor Christian consideration our condition either to pvide for vs a Minister and so maintaine him in Common that so we may enjoy the word of God amongst vs, or be pleased to dismisse to vs such anumber of ffamilies as liueth remote from y<sup>e</sup> Towne so as that wee may bee able to maintaine a Minister amongst our Selves, & if the Towne be pleased to leave vs distinct to or-selves then our desire is to begin at y<sup>e</sup> Horse bridge to Serg<sup>t</sup> Leaches, Jacob Barney, Sarg<sup>t</sup> Porter, Mr. Endecot to the wooden bridge swamp & the inhabittance beyond y<sup>e</sup> River & so we desire to waite vpon God for helpe & his assistance and vpon you for yor loveing answer.

The 4 : 12, 6 <sup>8</sup> / <sub>9</sub>	Rob't Prince,	Rich. Hutchison,
	Jonat, Knight,	Thomas Putnam,
	James Hadlock,	Bray Wilkins,
Joseph Houlton.	Joseph Herick,	Nath'l Putnam,
	Tho. Small,	Jno. Putnam,
	Jno. Burton,	Thomas Fuller,
	Jno. Gingel,	Josh. Rea,
	Tho. Wilkins,	Joseph Hutchison,
	Philip Knight,	Nath'l Ingerson,
	Jno. Simson,	Jno. Wilkins,
		Henry Keny.

Rev. CHARLES B. RICE, the pastor of the church, spoke words of welcome and expressed his gratification that the meeting was held in his church, and alluded to some of the old historical houses, of which not a vestige now remains.

Mr. DAVID STILES, of Middleton, being called upon, spoke of the old Townsend Bishop house, and exhibited pieces of the wood of the house which he had recently taken from the ridgepole and narrated some interesting reminiscences. He alluded in the highest terms of commendation to the services rendered to this community by Mr. William P. Upham, in making us better acquainted



with the many interesting incidents connected with our early history, whilst collecting materials for his father's admirable work on the Salem Witchcraft.

Dr. JEREMIAH SPOFFORD, of Groveland, spoke of the geological evidence that the Merrimac River once emptied into the ocean by another channel south of its present one.

Dr. Spofford then alluded to the remarks of Mr. Putnam on the restocking of rivers, especially the Merrimac, with fish, and questioned the success of the plan.

A discussion followed, participated in by Messrs. J. Spofford, F. W. Putnam, C. P. Preston, and others; during which Mr. Putnam made a statement as to the results already attained by the several Fish Commissioners, and urged that they be aided in their work, as the principles, upon which the experiments were being made, were sound, and if the people would have patience and assist the Commissioners in their efforts, he believed the day would not be far distant when salmon and shad would again be plenty in our rivers.

Mr. AUGUSTUS MUDGE, of Danvers Centre, spoke of the important work done by the Institute at their meetings, and was gratified to have a meeting in his town. He alluded in highly complimentary terms to Mr. Upham's valuable history of the Salem witchcraft, which he said was of inestimable worth to students of history; but the great mass of the people could not devote their time to its study. He said that there was a little book called "Witch Hill," which was admirably adapted to popular reading. He spoke of the local history of the place, and said that the first and last English governors of Massachusetts resided in Danvers — Gov. Endicott and Gov. Gage, the one at his farm near Danversport, the other at

the Collins House, now owned and occupied by Francis Peabody, Esq. The house where Gen. Israel Putnam was born still stands about one mile away, and a number of the ancient witch houses are still in existence in various parts of the town.

Mr. WILLIAM P. UPHAM, of Salem, related some facts about the original Parris house, the birthplace of witchcraft. Some distance from the site of the house stands another house, a part of which was supposed to be a part of the original Parris house; but which proves to be an addition built in the eighteenth century and which was moved away. He exhibited, however, a well authenticated fragment of the old house which came from a shed built of the pieces of the house when it was torn down. He also exhibited some pears gathered from a tree planted by the Rev. Mr. Bailey, the first minister of the parish.

Mr. GEORGE TAPLEY, of Danvers, spoke of the Hon. Samuel Holton,\* a very noted, prominent and influential citizen in the annals of the town, and paid a fitting tribute to his memory. The mansion in which he resided for many years is still extant and is near to this place of meeting. Mr. Holton was a man of great integrity and

---

\*Samuel Holton, the only son of Samuel and Hannah (Gardner) Holton, was born at Salem Village, now Danvers, June 9, 1738. In early life a successful practitioner of medicine. His public career commenced in 1768, when he was elected a representative to the general court from Danvers. He was eight years a representative, five years a senator, and twelve councillor, in Massachusetts legislature, five in congress under the confederacy and two under the Federal constitution, a member of the constitutional convention of 1780; a delegate to the State convention for ratifying and adopting the Federal constitution, twice served as presidential elector. For thirty-two years a justice of the court of common pleas for Essex, being for half of that time the presiding justice, a judge of probate of Essex from July 2, 1796, to May 29, 1815. He also discharged the duties of several town offices and other public and private trusts. He died Jan. 2, 1816, and tributes were paid to his memory by numerous grateful hearts and a sermon was preached at his funeral by the Rev. Dr. Benj. Wadsworth, which was published and widely circulated.

ability; courteous and unaffected, enthusiastic in promoting the cause of liberty, yet dignified, firm and prudent in all his actions. His long and faithful services in various important stations, legislative as well as judicial, have caused his name to be cherished with gratitude and respect.

Mr. S. B. BUTTRICK, of Salem, presented the following list of plants observed by him during the excursion in the forenoon:—

<i>Gerardia purpurea</i> , . . . . .	Purple gerardia.
“ <i>tenuifolia</i> , . . . . .	Slender gerardia.
<i>Eupatorium purpureum</i> , . . .	Trumpet weed.
“ <i>perfoliatum</i> , . . .	Thoroughwort.
<i>Spiræa salicifolia</i> , . . . . .	Meadow sweet.
“ <i>tomentosa</i> , . . . . .	Hardhack.
<i>Arum triphyllum</i> , . . . . .	Indian turnip (in fruit).
<i>Nabalus albus</i> , . . . . .	White flowering lettuce.
<i>Mulgedium leucophæum</i> , . . .	Blue lettuce.
<i>Onoclea sensibilis</i> , . . . . .	Sensitive fern.
<i>Cuscuta Gronovii</i> , . . . . .	Dodder.
<i>Rudbeckia laciniata</i> , . . . . .	Tall cone flower.
<i>Apocynum androsæmifolium</i> ,	Dogsbane.
<i>Typha latifolia</i> , . . . . .	Reed mace (in fruit).
<i>Trichostema dichotomum</i> , . .	Blue curls; pennyroyal.
<i>Lespedeza capitata</i> , . . . . .	Headed bush clover.
<i>Oxalis stricta</i> , . . . . .	Yellow wood sorrel.
<i>Cichorium intybus</i> , . . . . .	Succory.
<i>Lobelia inflata</i> , . . . . .	Indian tobacco.
“ <i>cardinalis</i> , . . . . .	Cardinal flower.
<i>Brunella vulgaris</i> , . . . . .	Common selfheal.
<i>Eriophorum polystachyon</i> ,	
<i>var. angustifolium</i> , . . . .	Cotton grass.
<i>var. latifolium</i> , . . . . .	“ “
<i>Goodyera repens</i> , . . . . .	Rattlesnake plantain.

Mr. F. W. PUTNAM, after some appropriate remarks, introduced the following resolution, which was unanimously adopted:—

*Resolved*, That the thanks of the Essex Institute be presented to the proprietors of the First Congregational Church and to the citizens of Danvers generally for their generous and kind attentions, which have contributed so much to the pleasure and interest of the day.

Messrs. J. Fletcher, of Lawrence, and J. Henry Badger and Edgar Vivian, of Salem, were elected resident members.

Adjourned.



#### SPECIAL MEETING, THURSDAY, SEPT. 11, 1873,

Was held this evening, commencing at 7.15 o'clock, in the Whitefield church, Newburyport, for the reading of a memorial address by Rev. SAMUEL J. SPALDING, D.D., upon the late HENRY COIT PERKINS, M.D., of Newburyport, an interested and esteemed member of the Institute.

The following exercises were observed on this occasion :

1. Hymn.—“The spacious firmament on high.”
2. Reading of Scripture and Prayer, by Rev. R. Campbell.
3. Singing.—“Blessed are the dead who die in the Lord.”
4. Address by Rev. S. J. Spalding, D.D.
5. Singing.—“God who madest earth and heaven.”
6. Benediction.

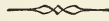
The singing was by a quartette under the direction of Mr. Wm. P. Dodge.

The thanks of the Institute are due to Rev. Dr. Spalding for his faithful and correct delineation of the character and services of our late associate. The request for a copy of the address for publication has been freely granted, and the same will accordingly be printed in the twelfth volume of the “Historical Collections.”

## REGULAR MEETING, MONDAY, OCT. 6, 1873.

MEETING this day at 4 P.M. The PRESIDENT in the chair.

John G. Barker, of Lynn, was elected a resident member.



## REGULAR MEETING, MONDAY, OCT. 20, 1873.

Meeting this evening at 7.30 o'clock. The PRESIDENT in the chair. Records read.

The SECRETARY announced the following correspondence:—

From E. C. Bolles, Sept. 12, 15; E. P. Boow, New York, Oct. 6; Henry I. Bowditch, Boston, Sept., Oct. 10, 18; E. C. Cowles, Ipswich, Sept. 29; J. E. Deane, New York, Oct. 17; William J. Fletcher, Lawrence, Sept. 8; John C. Holmes, Detroit, Mich., Oct. 6; F. B. Hough, Lowville, N. Y., Sept. 13; S. G. Howe, Boston, Sept. 27; T. Morong, Ipswich, Sept. 20, Oct. 4, 8; J. R. Nichols, Haverhill, Sept. 28; A. Osgood, Newburyport, Sept. 8; G. D. Phippen, Sept. 12; S. C. Rodgers, Troy, N. Y., Sept. 30; J. L. Robinson, Wenham, Oct. 7; Edward E. Rice, Boston, Sept. 30; Rogers Stuart, Providence, R. I., Oct. 14; George Russell, Boston, Sept. 27; John J. Somes, Gloucester, Sept. 9, 12, Oct. 6, 14; S. J. Spalding, Newburyport, Sept. 13, 20, Oct. 10; J. M. Thompson, Sept. 5, 9; Henry E. Waite, West Newton, Sept. 20; Charles A. Walker, Chelsea, Sept. 26, Oct. 8; W. C. Wood, Wenham, Oct. 18; W. H. Yeomans, Columbia, Conn., Sept. 22; American Geographical Society, Oct. 11; Berlin, Akklimatisations Verein, June 26; Buffalo Historical Society, Oct. 7; Essex Horticultural and Agricultural Society, Oct. 1; Liege, Société Royale des Sciences, July; Liverpool, Royal Institution, Aug. 21; New York Historical Society, Oct. 10; New York Genealogical and Biographical Society, Oct. 2; New York Lyceum of Natural History, Oct. 6; New York State Library, Oct. 2; Paris, Société Anthropologique, Juin 12; Vermont State Library, Oct. 1.

The LIBRARIAN reported the following additions:—

*By Donation.*

BARLOW, JOHN. Acts and Resolves of Mass. Leg., for 1869. 1 vol. 8vo. Annual Report of the Adjutant General of Mass. for 1862. 1 vol. 8vo. Seventh Annual Report of the Board of State Charities of Mass. for 1869-70. 1 vol. 8vo.

BEMIS, LUKE, of West Chester, Penn. History of Delaware County, Penn., by Geo. Smith, M. D. 1 vol. 8vo. Phila., 1862. History and Directory of Norristown and Bridgeport, 1860-61. 1 vol. 12mo.

GREEN, SAM'L A., of Boston, Mass. Miscellaneous pamphlets, 16.



HAYDEN, F. V., of Washington, D. C. *Acerididæ of North America*, by Cyrus Thomas, Ph. D. 4to pamph.

LEE, JOHN C. *Commercial Bulletin* for Sept. 13, 20, 1873.

MERRITT, L. F. *Shanghai Budget and Weekly Courier* for July 12, 19, 26, Aug. 2, 9, 1873.

NATIONAL ASSOCIATION OF WOOL MANUFACTURERS. *Bulletin* July-Sept., 1873.

NORTON, M. E. B., of Rockford, Ill. *Catalogue of the Officers and Students of Rockford Seminary* for 1864, 1865-6, 1867-8, 1868-9, 1869-70, 1872-3. 6 pamphlets.

PACKARD, A. S., of Brunswick, Maine. *Miscellaneous college pamphlets*, 4.

PALFRAY, C. W. *Miscellaneous pamphlets*, 20.

STAPLES, C. E., of Worcester, Mass. *Programme of the Sixteenth Annual Festival of the Worcester County Musical Association*, Oct. 6, 7, 8, 9, 10, 1873.

STEPHENS, W. H., of Lowville, N. Y. *Autobiography of L. Norton*. 1 vol. 12mo.

STONE, E. M., of Providence, R. I. *Annual Report of the School Committee of the City of Providence*, July, 1873. 8vo pamph.

SUMNER, CHARLES, U. S. Senate. *Medical and Surgical History of the War of the Rebellion*. 2 vols. 4to.

UPHAM ROGER F. *Annual Report of the Young Men's Christian Association of Worcester*, 1873.

U. S. BUREAU OF EDUCATION. *Report of the Commissioners of Education*, 1872. 1 vol. 8vo. *Circulars of Information of the Bureau*. Nos. 1, 2, 3, 1873.

U. S. DEPARTMENT OF THE INTERIOR. *Meteorological Observations during the year 1872 in Utah; Idaho and Montana*, by H. Gannett.

U. S. PATENT OFFICE. *Official Gazette* for Aug. 19, 26, Sept. 2, 9, 16, 23, 1873.

#### *By Exchange.*

AKKLIMATISATIONS VEREIN IN BERLIN. *Zeitschrift*, Vol. ix, Nos. 7-12, 1871. Vol. x, Nos. 1-12, 1872.

AMERICAN ANTIQUARIAN SOCIETY. *Proceedings of the*, at the Semi-Annual Meeting, held in Boston, Apr. 30, 1873.

BERWICKSHIRE NATURALIST CLUB. *Proceedings of*, 1872.

BOSTON PUBLIC LIBRARY. *Twenty-First Annual Report*, 1873.

CROSSE ET FISCHER. *Journ. Conchyliologie*, Tome xiii. 3e Série. Nos. 2, 3, 1873.

GEINITZ, HANNS BRUNO. *Königliche Mineralogische Museum zu Dresden*. 1873.

INSTITUT HISTORIQUE IN PARIS. *L' Investigateur*, Jan., Feb., March, April, 1873. 2 pamphlets. 8vo.

KONGELIGE DANSKE VIDENSKABERNES SELSKAB IN KJÖBENHAVN. *Oversigt*, 1872. No. ii.

L'ACADÉMIE IMPÉRIALE DES SCIENCES, in St. Petersburg. *Memoires*, Tome xviii. Nos. 8, 9, 10, 1872. Tome xix, Nos. 1, 2, 1872. 5 pamphlets. *Bulletin*, Tome xvii, Nos. 4, 5, 1872. Tome xviii, Nos. 1-2, 1872. 3 pamphlets.

NATURHISTORISCHE GESELLSCHAFT ZU HANNOVER. *Zweiundzwanzigster Jahresbericht*, 1871, 1872.

NATURWISSENSCHAFTLICHEN GESELLSCHAFT "ISIS" IN DRESDEN. *Sitzungs-Berichte*. Oct., Nov., Dec., 1872. Jan., Feb., März, 1873.

NATURWISSENSCHAFTLICHEN VEREIN IN HAMBURG. *Uebersicht der Aemter-Vertheilung und Wissenschaftlichen Thätigkeit*, 1871. *Abhandlungen aus dem Gebiete der Naturwissenschaften*. V Bd. 3 Abth. mit 8 Tafeln, 1872.

Rufus B. Gifford, of Salem, Mrs. Mary Safford Blake, of Boston, Charles A. Torrey, of Swampscott, and Frank O. Poor of Peabody, were duly elected resident members.

# BULLETIN

OF THE

## ESSEX INSTITUTE.

---

VOL. 5.                      SALEM, MASS., NOV., 1873.                      No. 11.

---

One Dollar a Year in Advance. 10 Cents a Single Copy.

---

REGULAR MEETING, MONDAY, NOV. 3, 1873.

MEETING this evening at 7.30 o'clock. The PRESIDENT in the chair. Records of preceding meeting read.

The SECRETARY announced the following correspondence :—

From Frances A. A. Appleton, Reading, Sept. 26, 1873; S. L. Boardman, Augusta, Me., Oct. 22; E. P. Boow, New York, Nov. 1; C. J. Maynard, Ipswich, Oct. 29; Thomas Morong, Ipswich, Oct. 27; William Northey, Oct. 29; J. H. Putnam, Danvers, Oct. 27; William S. Vaux, Philadelphia, Oct. 31; John A. Vinton, Winchester, Oct. 23, 30; Charles A. Walker, Chelsea, Nov. 1; William C. Wood, Wenhams, Oct. 18; H. T. Williams, New York, Oct. 23; Vermont State Library, Oct. 30; U. S. Naval Observatory, Washington, Oct. 26; Bruxelles, Académie Royale, Mai 10; Calcutta, Geological Survey of India, Sept. 3, 1872; Lyon, Société d' Agriculture, Histoire Naturelle et Arts Utiles, Juillet; Historical and Philosophical Society of Ohio, Oct. 23.

THE LIBRARIAN reported the following additions :—

*By Donation.*

ANDREWS, Miss ELIZA. North British Review, 1856. 14 nos.

BOLLES, E. C. Boston, As it was and is. 1 vol. 8vo. 1872.

BOWDITCH, HENRY I., of Boston. Nation, 1865, 1866, 1867, 1868. 7 vols. 4to, and 226 numbers of subsequent years. Army and Navy Journal for 1863-4, 1864-5, 1865-6. 3 vols. 4to.

ESSEX INST. BULLETIN.

v

15

- CROSBY, A. Triennial Catalogue of Dartmouth College, 1873. 8vo pamph.  
 LEE, JOHN C. Commercial Bulletin for Sept. 27, Oct. 4, 11, 18, 1873.  
 LINCOLN, SOLOMON, Hingham. The Old Meeting House in Hingham, 1681-1873. 8vo pamph.  
 NICHOLS, JOHN H., of New York, N. Y. Miscellaneous pamphlets, 50.  
 PUTNAM, GEO. G. Salem Directory for 1864. 1 vol. 16mo. The Rural Cemeteries of America, pts. 3, 4. 2 pamphlets, 4to. 1846.  
 RAYMOND, JOHN H., of Poughkeepsie, N. Y. Catalogues of Vassar College for 1863-6, 1866-7, 1897-8, 1869-70, 1871-2, 1872-3. Communications to the Board of Trustees of Vassar College, by its Founder. 8vo pamph. Biographical Sketch of Matthew Vassar, by J. H. RAYMOND. 8vo pamph. A Sketch of Vassar College, by J. H. Raymond. May, 1873. 8vo pamph.  
 SAUNDERS, MARY. History of the town of Warwick, Mass., by Hon. Jona. Blake. 1 vol. 8vo. 1873.  
 WEBB, S. P. Wood's Institute. 1 vol. 4to. London, 1763. Elementary Treatise on Mechanics. 1 vol. Cambridge, 1825. Wealth of Nations. 2 vols. 8vo. Hartford, 1811. Patent Office Report for 1848. 1 vol. 8vo. Stewart on the Mind. 1 vol. 8vo. Boston, 1821. The Federalist. 1 vol. 8vo. Washington, 1818. Laws of Mass. Vol. ii, iii. 2 vols. Boston, 1823. Holy Bible. 3 vols. 8vo. Phila., 1804. Sermons by Rev. J. S. Buckminster. 1 vol. 8vo. Boston, 1814. Memoir of Nath'l A. Haven. 1 vol. 8vo. 1827. Element of Physics. 1 vol. 8vo. Phila., 1829. Adverse Enjoyment. 1 vol. 8vo. Boston, 1827. Lectures on Rhetoric and Belles Lettres. 1 vol. 8vo. N. Y., 1826. Memoirs of Gen. Lafayette. 1 vol. 8vo. Boston, 1824. The Power of Solitude. 1 vol. 8vo. Bards of the Bible. 1 vol. 8vo. New York, 1851. Discourses by F. Wayland. 1 vol. 8vo. Boston, 1833. Poems by G. Mellen. 1 vol. 8vo. Boston, 1833. Philosophy of Religion. 1 vol. 8vo. Phila., 1849. Sullivan's Lectures. 2 vols. 8vo. Portland, 1805. The Scriptures on the Guilt of Slavery. 1 vol. 8vo. Boston, 1860. Elements of Technology. 1 vol. 8vo. Boston, 1829. Essays on Phrenology. 1 vol. 8vo. Phila., 1822. Universal History, Vols. i, ii, iv. 3 vols. 12mo. Collections of the Mass. Historical Society for 1799. 1 vol. 8vo. Boston, 1800. The Throne of David. 1 vol. 8vo. Phila., 1860. Memoirs of the Revolution. 1 vol. 8vo. Phila., 1839. Spurzheim on Education. 1 vol. 8vo. Boston, 1832. Jefferson's Manual. 1 vol. 12mo. History of Nova Scotia, etc. 1 vol. 12mo. 1837. Washington's Letters. 2 vols. New York, 1796. Unitarian Tracts. 3 vols. 12mo. Legend of St. George. 16mo. 1836. The Works of Alexander Pope. 1 vol. 16mo. London, 1736. Notes on the State of Virginia. 1 vol. 16mo. Boston, 1802. Hymns and Psalms. 1 vol. 16mo. Boston, 1828. The Life and Death of the Rev. A. Fuller. 1 vol. 12mo. 1818. Channing on Slavery. 1 vol. 12mo. Miscellaneous Works of Oliver Goldsmith. 1 vol. 16mo. Phila., 1827.

*By Exchange.*

- ACADÉMIE IMPÉRIALE DES SCIENCES, BELLES-LETTRES ET ARTS IN LYON. Mémoires, tome xix. 1871-72.  
 ACADÉMIE ROYALE DES SCIENCES, DES LETTRES ET DES BEAUX-ARTS DE BELGIQUE IN BRUXELLES. Annuaire, 1872, 1873. Bulletins, 2me série, 40me année, tomes xxxii, xxxiii, xxxiv, 1871-2. Centième Anniversaire de Fondation (1772-1872). Tome i, ii. 2 vols. 8vo. Observations des Phénomènes Périodiques pendant l'année, 1870. 4to pamph.  
 GEOLOGICAL SURVEY OF INDIA. Memoirs of the Geological Survey. Vol. viii, pts. i, ii. 2 pamphlets. Vol. ix, pts. i, ii. 2 pamphlets, 1872. Records of the Geological Survey. Vol. v, pts. i, ii, iii, iv. 4 pamphlets. Memoirs of the Geological Survey. Vol. iv, pts. i, ii. 1872. 2 pamphlets.

L'ACADÉMIE IMPÉRIALE DES SCIENCES DE ST. PETERSBURG. Mémoires, tome xix, Nos. 3, 4, 5, 6, 7. 1873. 5 pamphlets.

NATURAL HISTORY SOCIETY OF MONTREAL. Canadian Naturalist. Vol. vii, Nos. 2, 3.

NEW ENGLAND HISTORIC-GENEALOGICAL SOCIETY. Historical and Genealogical Register and Antiquarian Journal for Oct., 1873.

NEW YORK GENEALOGICAL AND BIOGRAPHICAL SOCIETY. Genealogical and Biographical Record for Oct., 1873.

NEW YORK LYCEUM OF NATURAL HISTORY. Proceedings of the, 2d Series, Jan. 3d, March 3d, 1873. 8vo pamph. Annals of, March-June, 1873.

NEW YORK STATE LIBRARY. Twenty-fourth Annual Report of the New York State Museum of Natural History, 1870. 1 vol. 8vo. Reports of the Regents of the University of N. Y. for 1870, 1871, 1872. 3 vols. 8vo. Reports of the Trustees of the N. Y. State Library for 1872-1873.

OBERHESSEISCHEN GESELLSCHAFT FÜR NATUR UND HEILKUNDE IN GIESSEN. Vierzehnter Bericht, tome xiv, 1873.

PEABODY ACADEMY OF SCIENCE. Fifth Annual Report of the Trustees of the, for 1872.

REALE ACCADEMIA DELLE SCIENZE IN BOLOGNA. Rendiconto, Anno Accademico, 1871-72.

SOCIÉTÉ D'ACCLIMATION IN PARIS. Bulletin Mensuel, tome x, Nos. 1-5. 1873, 5 pamphlets. 8vo.

SOCIÉTÉ D'AGRICULTURE D'HISTOIRE NATURELLE ET DES ARTS UTILES, Lyon, Annales, tome iii, 1870.

SOCIÉTÉ D'ANTHROPOLOGIE IN PARIS. Bulletins, tome vii, No. 4; tome viii, No. 1. 1872-3. 2 pamphlets, 8vo.

SOCIÉTÉ LINNÉENNE IN LYON. Annales, tome xix, 1872.

SOCIÉTÉ ROYALE DES SCIENCES DE LIÈGE. Mémoires 2e Série, Tome iii, 1873.

VERMONT HISTORICAL SOCIETY. Vermont House Journal, 1872. 1 vol. 8vo. Senate Journal, 1872. 1 vol. 8vo. Vermont Legislative Documents, 1872. 3 vols. 8vo. The Capture of Ticonderoga. 1 vol. 8vo. Report of the Transactions of the Vermont Dairymen's Association for 1872. 8vo pamph. Report of the Vermont Insane Hospital for 1873. 8vo pamph.

PUBLISHERS. American Naturalist. Forest and Stream. Gardener's Monthly. Gloucester Telegraph. Hardwicke's Science Gossip. Haverhill Gazette. Historical Magazine. Ipswich Chronicle. Lawrence American. Lynn Reporter. Lynn Transcript. Medical and Surgical Reporter. Nation. Nature. Peabody Press. Quaritch's Catalogue. Sailors' Magazine and Seamen's Friend. Salem City Post. The Penn Monthly.

## The following donations were announced to the Museum :—

GEORGE G. CREAMER. A sea-letter with the signatures of Geo. Washington and Edw. Randolph.

GEORGE D. PHIPPEN. A Memorial Pitcher.

Mrs. P. P. PINEL. A Miniature of Capt. Eben Shillaber.

Mrs. EDWARD APPLETON of Reading. A piece of the first Patch or India Copper Plate, as it was called, that was imported into Boston by Hon. Thaddeus Mason, of Cambridge (b. Jan. 7, 1707, and d. May 1, 1802), probably more than 120 years old.

Mr. C. J. MAYNARD, of Ipswich, gave an interesting sketch of the mechanism of the flight of birds, which he illustrated by a series of preparations of the breast bones, and by drawings on the blackboard. He also alluded to the means by which animals belonging to other classes are enabled to fly with a greater or less degree of perfection; such as the bats, flying fishes, flying reptiles, etc.

A discussion on some points of structure followed, participated in by Messrs. F. W. Putnam, A. S. Packard, Jr., and others.

Mr. F. W. PUTNAM read the following communication :

NOTES ON THE BIRD-FAUNA OF THE SALT LAKE VALLEY AND  
THE ADJACENT PORTIONS OF THE WAHSATCH MOUNTAINS.

BY ROBERT RIDGWAY.

THE recently published paper of Mr. J. A. Allen\* upon the birds collected and observed by him in the vicinity of Ogden, in the Salt Lake Valley, has called the attention of ornithologists to that field; and has, moreover, particularly attracted those interested in the subject of the geographical distribution of North American birds.

While Mr. Allen's observations were made during the season of the autumnal migration, I had the good fortune to explore nearly the same ground during the breeding season,† or when the summer fauna was stationary. Combining, therefore, the results of the two explorations, and taking into additional consideration that we collected in localities a few miles apart—Mr. Allen at Ogden and I at and about Salt Lake City—the character of the avi-fauna of the western watershed of the Wahsatch may be pretty well shown.

---

\*See Bulletin of the Museum of Comparative Zoology, Cambridge, Mass., Vol. iii, No. 6, July, 1872. Part viii, List of the Birds collected in the vicinity of Ogden, Utah Territory, from Sept. 1 to Oct. 8, 1871; with Annotations. pp. 164-173. (Species 137.)

†It is fitting to state here that my investigations were made under the auspices of the government, I being attached to the U. S. Geological Survey of the 40th parallel, as zoologist. Mr. Clarence King, U. S. Geologist in charge of the Survey, throughout the continuance of the work, offered me every possible facility. The general report upon the birds collected and observed by Mr. King's Survey is now in press and nearly completed, and will ere long be before the public.



The season of my investigations extended from the 20th of May until the middle of August, 1869. The area which they covered comprised the immediate vicinity of Salt Lake City, where most of the month of May was passed, and where a few birds were collected by me the previous October. In the early part of June a trip was taken to the large islands, Antelope, Stansbury and Carrington, in the Great Salt Lake. On the 23d of the latter month our camp was removed to Parley's Park, an elevated meadow in the Wahsatch mountains, about twenty-five miles east of Salt Lake City. In Parley's Park a rich bird-fauna was found, and I had the good fortune to be there in the height of the breeding season. About the beginning of July, an excursion was made to the western spur of the Uintah Mountains, crossing Kamas Prairie on the way. Returning along the Provo River, passing by Utah Lake, and thence northward along the western base of the Wahsatch, to Salt Lake City, the field of my observations was still farther extended.

Throughout this considerable area of country no marked local variations in the bird-fauna were noticed, beyond occasionally the occurrence at a certain point of a species not noticed elsewhere. Thus, on Antelope Island, the true *Empidonax Traillii* was obtained. In Kamas Prairie, *Actiturus Bartramius* was noticed, while along the Provo River, *Turdus fuscescens* was very abundant. In Parley's Park, a single individual of *Calamospiza bicolor* was seen and obtained, and at Salt Lake City the *Melanerpes erythrocephalus* was seen. Of course the necessary diversity of woodland, desert and aquatic faunæ was everywhere observed in their respective haunts, but the same kind of locality was inhabited by the same characteristic set of birds, wherever we went.

The western water-shed of the Wahsatch Mountains is a region remarkable as forming a natural, and nearly abrupt, limit to the westward range of the bulk of the species characterizing the eastern region of North America, though the western fauna overlaps for a distance of nearly one thousand miles to the eastward. In the *Ornis* of the Salt Lake Valley there is thus a combination of these two opposite faunæ, which gives to it an interesting variety and peculiar richness, compared with other western localities. This mixture of eastern and western birds at first rather surprises the collector in this section, for it is so far within the area of the western region that the former are supposed to be all left behind. Taking the vicinity of Salt Lake City, the collector will find, in the lower portions of the cañons of the Wahsatch, the Cat-bird (*Galeoscoptes Carolinensis*), skulking through the same thickets with the Woodhouse's Jay (*Cyanocitta Floridana*, var. *Woodhousei*), while the Olive-backed Thrush (*Turdus Swainsonii*) joins in song with the Solitaire (*Myiadestes Town-*

*sendii*). In the willow copses along the streams of the valley portions, the Tawny Thrush (*Turdus fuscescens*) sings in company with the Western Tanager (*Pyrrhula ludoviciana*) and Black-headed Grosbeak (*Heodymeles melanocephalus*); the Redstart (*Setophaga ruticilla*) and Fairy Titmouse (*Psaltiriparus plumbeus*) may often be seen flitting through the same thickets; in the meadows, Bobolinks (*Dolichonyx oryzivorus*) and Yellow-headed Blackbirds (*Xanthocephalus icterocephalus*) mingle together; in the same cottonwood trees may be found nests of the Eastern and Western Kingbirds (*Tyrannus Carolinensis* and *T. verticalis*), while around them sport together the eastern Red-headed Woodpecker (*Melanerpes erythrocephalus*) and its ring-necked cousin (*M. torquatus*). Besides those above mentioned, are many other eastern species whose ranges find their western limit in this neighborhood. Mr. Allen gives the following as found at Ogden:—*Dendroica Blackburniae* (Sept.): *Vireosylva olivacea* (Sept.). Other eastern species, given in Mr. Allen's list, I have obtained at various points in Nevada, as follows:—*Helminthophaga ruficapilla* (East Humboldt Mts., Sept.; also California, Xantus and Gruber); *Lanius solitaria* (West and East Humboldt Mts., Sept. and Oct.); *Ampelis cedrorum* (Humboldt Valley, Sept.); *Dolichonyx oryzivorus* (Ruby Valley, August); *Tyrannus Carolinensis* (Truckee River, July and August); also *Spizella monticola* (western Nevada; winter resident) and *Ectopistes migratoria* (West Humboldt Mts., Sept.), not given in Mr. Allen's list. Besides the foregoing species, Mr. C. Drexler obtained at Fort Bridger, near the northeastern corner of Utah, and still within the Wahsatch region, the following additional species:—*Seiurus noveboracensis*, *Empidonax minimus*, and *Quiscalus purpureus* var. *aeneus*. These will undoubtedly yet be found in the Salt Lake Valley.

In addition to these species, Mr. H. W. Henshaw, of Lieut. Wheeler's expedition, procured the *Melospiza palustris* in southern Utah, and obtained good evidence of the breeding of *Cistothorus stellaris* in Utah Lake.

Another very remarkable peculiarity of the Wahsatch region, which I wish particularly to mention in this connection, is the fact that, in the case of representative species or races, the eastern or Rocky Mountain forms breed there, while the more western forms replace them in the fall and winter. Thus *Zonotrichia leucophrys* and *Junco hyemalis* var. *caniceps* are the only species of these two genera which breed on the Wahsatch, and they nest there very numerously; but in the fall their place is taken by the western *Z. leucophrys* var. *Gambelii* and *J. hyemalis* var. *Oregonus*, which are unknown in summer. *Lanius solitaria* var. *plumbea* breeds there, while var. *solitaria*, coming from the northwestward, replaces it in autumn. The same is the case with *Turdus Pallasii* var. *Auduboni* (summer resident) and var. *nanus*

(autumnal migrant); and apparently the case also, with *Helminthophaga Virginie* (summer) and *H. ruficapilla* (autumn).

I shall notice first the results of Mr. Allen's investigations, as embodied in the list above cited; and as I desire to add some notes on species whose range, etc., Mr. Allen had no chance to determine, I shall go through the catalogue in regular order. (The numbers prefixed to the species correspond to those in Mr. Allen's catalogue.)

- P. 165. No. 2. = *T. Pallasii* var. *Auduboni*.
- P. 166. No. 10. *Cistothorus stellaris* is a misprint for *C.* (= *Telmatodytes*) *palustris* var. (*paludicola*).
- No. 5. (*Sialia arctica*.) I found this species breeding in Salt Lake City, on Antelope Island, in the lake, and on the Wahsatch Mountains, in June.
- No. 7. (*Regulus calendula*.) Found in the pine woods of Parley's Park (altitude 8,000 feet) in June, July and August, and no doubt breeds there.
- No. 16. (*Helminthophaga celata*.) Found by me breeding in the aspen woods at an altitude of 7,000-9,000 feet, in the Wahsatch.
- No. 17. (*Dendroica Auduboni*.) Breeding in the pine woods of the Wahsatch, at an altitude of 7,000-9,000 feet.
- No. 19. ("*D. nigrescens*?") This was very probably that species, as I found it breeding in tolerable abundance on the East Humboldt Mts. Mr. Aiken has also found it on the mountains of Colorado.
- P. 167. No. 22. (*Setophaga ruticilla*.) I found this species to be common in the Salt Lake region, both in the valley portions and in the lower portions of the cañons. Obtained in June on Antelope Island.
- No. 31. = *C. Ludovicianus* var. *excubitoroides*.
- No. 34. Should be *C. Cassini*.
- No. 38. Should be var. *alaudinus*.
- No. 39. Should be var. *confinis*.
- No. 41. We found the true *leucophrys* breeding abundantly in Parley's Park, and high up in City Creek Cañon, and, from May till the latter part of August, never saw a single specimen of *Z. Gambelii*.
- P. 168. No. 45. Should be *S. pallida* var. *Breweri*.
- No. 46. Should be var. *fallax*.
- No. 51. Should be var. *megalonyx*.
- No. 63. According to the strict rules of binomial nomenclature, the name "*Aphelocoma*" (Cabanis) cannot be used for this genus, the proper name of which is *Cyanocitta* (Strickland) of prior date, and strictly congeneric type (*C. Californica*).
- No. 72. Should be var. *Henryi*.
- No. 74. No doubt var. *Gairdneri*, which species I found in July and August in Parley's Park.
- P. 170. No. 82. Should be var. *calurus*.
- P. 171. No. 92. Should be var. *umbelloides*.
- No. 103. Eggs obtained in Uintah Mts. in July. Very common in Wahsatch during summer.
- No. 104. Not seen by us in June on Antelope or Stansbury Islands, but observed in the ponds on the southeast shore of the lake.

P. 172. No. 108. This is the *I. guarana*, a south and middle American species common in the middle provinces of the United States (where *I. "Ordii"* does not occur). It is specifically distinct from "*Ordii*" which is absolutely identical with the *I. falcinellus* of Europe.

No. 109. *Ibis alba*. This locality is entirely new for this bird, it having not been previously obtained within the middle province of the United States.

No. 114. Should be *R. elegans*.

P. 173. No. 135. Another species new to the fauna of the Great Basin.

The following species, not given in Mr. Allen's list of autumnal birds in the vicinity of Ogden, were found by me breeding in Salt Lake City and the neighborhood:

No.	Species.	Where found.	Alt.	Numbers.
1.	TURDUS FUSCESCENS.	Willows of river valleys.	4,000-6,000	Abundant.
2.	TURDUS SWAINSONI.	Mountain streams.	6,000-9,000	"
3.	CATHERPES MEXICANUS, var. CONSPERSUS.	City Creek Cañon near Salt Lake City.	4,000-5,000	Rare.
4.	CERTHIA AMERICANA.	Pine region of Wahsatch	8,000-10,000	Not common.
5.	SITTA CANADENSIS.	" " " "	8,000-10,000	Rare.
6.	PARUS MONTANUS.	" " " "	8,000-10,000	Common.
7.	HELMINTHOPHAGA VIRGINIE.	Scrub oaks of foot-hills, and mahogany woods.	4,000-6,000	"
8.	DENDROICA ÆSTIVA.	Everywhere.	4,000-10,000	Abundant.
9.	COTYLE RIPARIA.	Valley portions.	4,000	"
10.	PROGNE SUBIS.	Aspen woods.	7,000-9,000	"
11.	LANIVIREO SOLITARIA, var. PLUMBEA.	"Mahogany" and cedar woods.	7,000-10,000	Rare.
12.	CARPODACUS CASSINI.	Cottonwoods in parks.	6,000-8,000	Abundant.
13.	CARPODACUS FRONTALIS.	Valleys.	4,000-6,000	"
14.	CHRYSOMITRIS PINUS.	Pine region and aspens.	8,000-10,000	Extremely abundant.
15.	CHONDESTES GRAMMACA.	Valleys- <i>artemisia</i> .	4,000-5,000	Very abundant.
16.	ZONOTRICHIA LEUCOPHRYS.	Parks.	6,000-8,000	Abundant.
17.	JUNCO HYEMALIS, var. CANICEPS.	Pine region.	8,000-10,000	Common.
18.	POOSPIZA BILINEATA.	Artemisia plains.	4,000-5,000	Abundant.
19.	SPIZELLA PALLIDA, var. BREWERI.	" "	4,000-5,000	"
20.	CALAMOSPIZA BICOLOR.	Parley's Park.	7,000	1 spec.
21.	PIPILO ERYTHROPHthalmus, var. MEGALONYX.	Scrub oaks of foot-hills.	4,000-6,000	Very abundant.
22.	MYIARCHUS CRINITUS, var. CINERASCENS.	Parley's Park.	7,000	Rare.
23.	SAYORNIS SAYUS.	Valleys.	4,000-5,000	Rath. com.
24.	EMPIDONAX TRAILLI.	Antelope Island.	4,000?	1 spec.



No.	Species.	Where found.	Alt.	Numbers.
25.	E. TRAILLI, var. PUSILLUS.	Willows along streams.	4,000- 7,000	Very abun- dant.
26.	MOLOTIRUS PECORIS.	Valleys.	4,000	Not com- mon.
27.	PICUS PUBESCENS, var. GAIRDNERI.	Parks.	8,000	Very rare.
28.	PICUS VILLOSUS, var. HARRISII.	All wooded portions.	4,000- 10,000	Common.
29.	SPHYROPICUS VARIUS, var. NUCHALIS.	Aspen woods.	7,000- 9,000	Very abun- dant.
30.	SPHYROPICUS THYROIDEUS.	Pine region.	8,000- 10,000	Rare.
31.	SPHYROPICUS WILLIAMSONII.	" "	8,000- 10,000	"
32.	MELANERPES ERYTHROCEPHALUS.	Salt Lake City.	4,000	1 spec.
33.	MELANERPES TORQUATUS.	Cottonwoods of river valleys.	4,000?	Not com- mon.
34.	TROCHILUS ALEXANDRI.	Flowery places every- where.	4,000- 8,000	Common.
35.	PANYPTILA MELANOLEUCA.	City Creek Cañon.	5,000?	Rare.
36.	BUTEO SWAINSONII.	Everywhere.	4,000- 9,000	Very com- mon.
37.	FALCO LANARIUS, var. POLYAGRUS.	Cliffs of cañons; valleys.	4,000- 9,000	Rare.
38.	SYMPHEMIA SEMIPALMATA.	Marshes.	4,000- 7,000	Very com- mon.
39.	NUMENIUS LONGIROSTRIS.	Marshes of lake shores.	4,000	Abundant.
40.	ÆGIALITIS CANTIANUS, var. NIVOSUS.	Shore of Warm Spring Lake.	4,000	Very abun- dant.
41.	PORZANA JAMAICENSIS?	Parley's Park, meadows.	7,000	Not rare!
42.	LARUS ARGENTATUS, var. CALIFORNICUS.	Salt Lake.	4,000	Very abun- dant.
43.	STERNA REGIA.	" "	4,000	"
44.	STERNA FORSTERI.	" "	4,000	"

Mr. Allen obtained the following species in October, which I did not find among the summer birds. Those marked \* are probably resident and breeding; the others are autumnal migrants from the northern and northwestern regions:—

- |   |                                     |
|---|-------------------------------------|
| 1. Anthus Ludovicianus.                   | 11. Macrorhamphus griseus.          |
| 2. Helminthophaga ruficapilla.            | 12. Pelidna alpina, var. Americana. |
| 3. Dendroica Blackburniæ.                 | 13. Gambetta melanoleuca.           |
| *4. " nigrescens.                         | 14. " flavipes.                     |
| *5. Vireosylva olivacea.                  | *15. Ibis alba.                     |
| 6. " solitaria.                           | 16. Rallus elegans ("crepitans").   |
| *7. Ampelis cedrorum.                     | 17. Anser hyperboreus.              |
| 8. Zonotrichia leucophrys, var. Gambelii. | 18. Chroicocephalus Philadelphia.   |
| 9. Junco hyemalis, var. Oregonus.         | 19. Xema Sabinii.                   |
| *10. Corvus Americanus.                   | 20. Podiceps cornutus.              |

Mr. F. W. PUTNAM also read the following communi-  
cation:—



## THE BIRDS OF COLORADO.—BY ROBERT RIDGWAY.

THE present paper is based upon the observations of Mr. Charles E. Aiken, made in El Paso county, Colorado, chiefly in the vicinity of Fountain.\* The results of this gentleman's explorations in that field were communicated, from time to time, to Professor Baird, Dr. Brewer and myself, for use in our forthcoming work on North American Birds; but they are of such great interest that we cannot refrain from giving the public the benefit of them sooner than their appearance in our work.

In a paper on the birds collected by Mr. C. H. Holden, Jr., in the southern part of Wyoming,† Dr. Brewer has incorporated some notes furnished by Mr. Aiken upon the birds observed by him in the contiguous portions of northern Colorado; but Mr. Aiken having since sent to me a list of all the birds obtained and observed by him within the limits of the latter Territory, I have availed myself of his list as a nucleus for preparing a catalogue of all the species known to have been found within its limits. A few additions to Mr. Aiken's list have been made from Mr. Allen's "Ornithological Reconnoissance‡" of portions of Colorado, and from the collections made by the Government exploring parties under the direction of Dr. F. V. Hayden, U. S. Geologist, each species so included having the fact properly noted.

Mr. Aiken's researches were attended by many very important results. A new snowbird (*Junco hyemalis*, var. *Aikeni* RIDGWAY, Am. Nat., vol. vii, No. 10, Oct., 1873, p. 615), with two white bands on the wing, and of much larger size than the common form, was found among the high peaks and valleys of El Paso county; and two specimens of *Centronyx Bairdii* were taken in the same locality, being the second and third examples that were then known. These speci-

---

\*See American Naturalist, vii, No. 1, p. 13. "A Glimpse at Colorado and its Birds. By C. E. Aiken."

†Notes on the Birds of Wyoming and Colorado Territories. By C. H. Holden, Jr; with additional memoranda by C. E. Aiken. (Edited by T. M. Brewer, M.D.) Proceedings of the Boston Soc. of Nat. Hist., vol. xv, pp. 192-210: Dec., 1872. (142 species.)

‡Notes of an Ornithological Reconnoissance of portions of Kansas, Colorado, Wyoming and Utah. By J. A. Allen. Bulletin of the Museum of Comparative Zoology, Cambridge, Mass., vol. iii, No. 6. Part iii. List of Birds observed at the eastern base of the Rocky Mountains in Colorado Territory, between Colorado City and Denver, in July and August, 1871; with annotations, pp. 147-153. (81 species.) Part vi. List of Birds observed in South Park, Park County, Colorado Territory, in July, 1871; with annotations, pp. 153-159. (54 species.) Part vii. List of Birds observed in the Vicinity of Mt. Lincoln, Park County, Colorado, from July 19 to July 26, 1871; with annotations, pp. 159-164. (36 species.)

mens, one procured in the fall and the other in the spring, are in different plumages from the type, which is a midsummer bird, thereby attesting the entire distinctness and perfect dissimilarity of this species from any other yet known. But important and creditable as these two discoveries are, the new facts in regard to the geographical distribution of certain species, brought to light by Mr. Aiken's investigations, are of even greater value.

These facts are, first, the much greater northeastward range of forms heretofore supposed to be confined to the Colorado Province, in Arizona; second, the occurrence in the mountains of Colorado of many species found upon the Sierra Nevada, which seem to be entirely wanting in the intermediate widely spread area of the Great Basin; and, third, the occurrence in the mountains of Colorado of many strictly eastern species, not previously traced beyond the eastern border of the Plains. The latter result of Mr. Aiken's collecting in Colorado, joined to that of Mr. Allen in the same Territory and that of the writer, and subsequently Mr. Allen and other ornithologists in Utah, establishes the Rocky Mountain Range as the dividing line, or, more properly, the meeting ground, of the avi-faunæ of the Eastern and Western Regions, this system being, throughout its whole extent, almost as nearly related to the one as to the other,—though, as would be expected from the physical conditions of the country, the western element preponderates. Besides these discoveries in the geographical distribution of the species, new facts in relation to the range, habits or other peculiarities, of certain species are among other of the very satisfactory results of Mr. Aiken's ornithological explorations in Colorado. As a particular example, I may mention the discovery of the fact that *Corvus cryptoleucus*, formerly supposed to be confined to the Llano Estacado of Texas, is a very common bird along the eastern base of the Rocky Mountains, as far north as Cheyenne!

Upon examining a map of Colorado, it will be seen that the topography of this Territory is peculiarly favorable to an extremely varied fauna. The water-shed of the Continent runs across it almost in the middle, the streams on the eastern slope flowing into the Gulf of Mexico through the western tributaries of the Mississippi River, and those of the western slope emptying into the gulf of California, through the northeastern tributaries of the Rio Colorado. The direct result of its central position between several drainage systems is that the general eastern and western faunæ meet, or overlap; the birds characteristic of the Rio Grande district also enter its limits by following the head waters of that stream northward into San Louis Park and the adjacent country, while those of the Arizona district follow the northeastern tributaries of the Colorado River, and diffuse themselves over the western portion. In the northwestern corner

there is also a slight impress of the desert fauna of the Middle Province in consequence of the arid nature of the Green River district, while along the eastern base of the mountains the peculiar fauna of the Plains is the prevailing one upon the grassy foot-hills and prairies.

The following tables will show more clearly the distinct geographical elements in the Colorado avi-fauna. The species with an asterisk (\*) prefixed were first found in Colorado by Mr. Aiken.

#### I. EASTERN SPECIES FOUND IN COLORADO.

	<i>Supposed Western Limit.</i>
1. <i>Turdus fuscescens</i> .	Salt Lake Valley; breeding; common. RIDGWAY.
2. <i>Turdus Swainsoni</i> .	E. Humboldt Mts., Nevada; Sept. RIDGWAY.
3. <i>Galeoscoptes Carolinensis</i> .	Islands of Salt Lake; breeding. RIDGWAY.
4. <i>Harporhynchus rufus</i> .	Eastern base of Rocky Mountains. GOV'T SURVEY.
*5. <i>Sialia sialis</i> .	El Paso Co., Col. AIKEN.
*6. <i>Helminthophaga peregrina</i> .	El Paso Co., Col. AIKEN.
*7. <i>Parula Americana</i> .	El Paso Co., Col., May 11. AIKEN.
8. <i>Dendroica coronata</i> .	Denver, Col. WERNIGK. El Paso Co. AIKEN.
9. <i>Setophaga ruticilla</i> .	Islands of Salt Lake; breeding. RIDGWAY.
*10. <i>Passerculus savanna</i> .	El Paso Co., Col. AIKEN.
11. <i>Zonotrichia leucophrys</i> .	Wahsatch Mts.; W. slope; breeding. RIDGWAY.
12. <i>Junco hyemalis</i> .	Arizona. COUES. Utah. HENSHAW. Colorado. AIKEN.
13. <i>Spizella monticola</i> .	Col. R. KENNERLY. W. Na.; com. win. res. RIDGWAY.
14. <i>Euspiza Americana</i> .	Denver. ALLEN.
*15. <i>Cyanospiza cyanea</i> .	El Paso Co., Col. AIKEN.
16. <i>Dolichonyx oryzivorus</i> .	Ruby Valley, Nevada, Aug. and Sept. RIDGWAY.
*17. <i>Icterus Baltimore</i> .	El Paso Co., Col. AIKEN.
18. <i>Icterus spurius</i> .	Denver, Colorado. ALLEN.
19. <i>Quiscalus æneus</i> .	Fort Bridger, Wyoming. DREXLER. Col. AIKEN.

*Supposed Western Limit.*

20. *Tyrannus Carolinensis*. W. Na; breeding; S. L. Val.; breeding. RIDGWAY.
21. *Empidonax Traillii*. Antelope Island, Salt Lake; June, 1869. RIDGWAY.
22. *Empidonax minimus*. Fort Bridger, Wyoming. DREXLER. Col. AIKEN.
- \*23. *Sphyrapicus varius*. Colorado. AIKEN.
- \*24. *Centurus Carolinus*. Colorado. AIKEN.
25. *Melanerpes erythrocephalus*. Salt Lake City; June. RIDGWAY.
26. *Nisus Cooperi*. Doubtful.
- \*27. *Grus Americanus*. Colorado. AIKEN.
28. *Actiturus Bartramius*. Kamas Prairie, Utah; July; breeding. RIDGWAY.
- \*29. *Anas obscura*. Colorado. AIKEN.
30. *Querquedula discors*. W. Nevada; rare; breeding? RIDGWAY.

II. OTHER EASTERN SPECIES FOUND AT MORE WESTERN POINTS, NOT YET DETECTED IN COLORADO.

1. *Cistothorus stellaris*. Utah Lake; breeding. HENSHAW.
2. *Helminthophaga ruficapilla*. California. XANTUS and GRUBER. Ogden, Utah, Sept. ALLEN. E. Humboldt Mts., Na.; Sept. RIDGWAY.
3. *Dendroica Blackburniæ*. Ogden, Utah; Sept. ALLEN.
4. *Seiurus Noveboracensis*. Fort Bridger, Wyoming. DREXLER.
5. *Lanivireo solitaria*. W. and E. Humboldt Mts., Nevada; Sept. RIDGWAY. S. L. Val.; Sept. ALLEN.
6. *Vireosylvia olivacea*. Fort Bridger, Wyoming. DREXLER. Salt Lake Val.; Sept. ALLEN.
- 7? *Plectrophanes Lapponicus*. W. Nevada; winter. RIDGWAY.
8. *Melospiza palustris*. Southern Utah; Oct. HENSHAW.
9. *Passerella iliaca*. Saticoy, Cal.; Nov. DR. COOPER.
10. *Corvus Americanus*. W. Nevada; Oct. and Nov. RIDGWAY.

- |  |  |
|--|--|
| 11. <i>Coccygus Americanus</i> .       | Sac., Cal., June; RIDGWAY.<br>W. Nevada, July and Aug.<br>RIDGWAY. Tucson, Ariz.;<br>breeding. BENDIRE. Fort<br>Burgwyn, New Mex. DR.<br>ANDERSON. |
| 12? <i>Coccygus erythrophthalmus</i> . | N. Cal. DR. NEWBERRY.  |
| 13. <i>Hylotomus pileatus</i> .        | Columbia River. TOWNSEND.  |
| 14. <i>Colaptes auratus</i> .          | California. COOPER.  |
| 15. <i>Ectopistes migratoria</i> .     | W. Humboldt Mts., Nevada;<br>Sept. RIDGWAY.  |

III. SPECIES OF THE SOUTHERN BORDER OF THE U. S., WHICH HAVE  
BEEN FOUND IN COLORADO, BUT WHICH PROBABLY DO NOT  
OCCUR IN THE GREAT BASIN AT CORRESPONDING LATITUDES.

*a. Found from Florida to California.*

- \*1. *Mimus polyglottus*. (Colorado bird is var. *caudatus* Baird.)
- \*2. *Polioptila cærulea*.
- \*3. *Guiraca cærulea*.
- \*4. *Cardinalis Virginianus*. (var. *igneus* Baird.)

*b. From Florida to the Rocky Mountains.*

- \*5. *Meleagris gallopavo*. (var. *Mexicana* Gould.)
- 6. *Demiegretta* ——— sp. ?

*c. From the Rio Grande to California.*

- 7. *Tyrannus vociferans*.
- \*8. *Geococcyx Californianus*.
- \*9. *Pipilo fusca*. (var. *mesoleuca* Baird.)

*d. Eastern base of Rocky Mountains, only.*

- \*10. *Corvus cryptoleucus*.

IV. WESTERN SPECIES FOUND IN COLORADO, WHICH APPARENTLY  
DO NOT OCCUR IN CORRESPONDING LATITUDES IN THE GREAT  
BASIN.

- \*1. *Sialia Mexicana*. (Found in western Iowa by Mr. Atkinson!)
- \*2. *Lophophanes inornatus*.
- 3. *Sitta aculeata*.
- 4. *Sitta pygmæa*.
- \*5. *Glaucidium Californicum*.



CATALOGUE OF THE BIRDS KNOWN TO OCCUR IN COLORADO; DISTINGUISHING (WITH AN ASTERISK) THOSE WHICH HAVE BEEN ASCERTAINED TO BREED WITHIN THE LIMITS OF THE TERRITORY, AND APPROXIMATELY INDICATING THEIR RANGE DURING THE BREEDING SEASON.

No birds are included in the following list which are not positively known to occur within the limits of Colorado, nor are any of those marked as breeding in the Territory so distinguished without as good reason. Many species not found by Messrs. Aiken and Allen have been obtained by one or more of the several Government expeditions, chiefly those in charge of Dr. F. V. Hayden, which have from time to time made portions of Colorado their field of exploration.

No.	Species.	Centre of abundance during breeding season.
*1.	<b>Turdus fuscescens</b> STEPHENS.	Along the lower streams.
*2.	<b>Turdus Swainsoni</b> CABANIS.	“ “ mountain “
*3.	<b>Turdus Pallasii</b> CABAN., var. AUDUBONI Baird.	Pine region.
*4.	<b>Turdus migratorius</b> L.	All wooded portions.
*5.	<b>Galeoscoptes Carolinensis</b> (L.).	Along streams.
*6.	<b>Oreoscoptes montanus</b> (TOWNS.).	Artemisia plains.
*7.	<b>Harporhynchus rufus</b> (L.), var. LONGICAUDA Baird.	Foot-hills.
*8.	<b>Mimus polyglottus</b> , var. CAUDATUS Baird.	
*9.	<b>Cinclus Mexicanus</b> SWAINS.	Mt. streams and torrents.
10.	<b>Sialia sialis</b> (L.).	
*11.	<b>Sialia Mexicana</b> SWAINS.	Foot-hills.
*12.	<b>Sialia arctica</b> SWAINS.	Bare portions of mountains, near tree-limit; occasionally breeds lower down.
*13.	<b>Regulus calendula</b> (L.).	Pine region.
14.	<b>Regulus satrapa</b> LICHT.	
15.	<b>Polioptila cærulea</b> (L.).	
*16.	<b>Lophophanes inornatus</b> (GAMB.).	Foot-hills?
*17.	<b>Parus montanus</b> GAMB.	Pine region.
*18.	<b>Parus atricapillus</b> L., var. SEPTENTRIONALIS Harris.	Streams of lower portions.

No.	Species.	Centre of abundance during breeding season.
*19.	<i>Psalttriparus minimus</i> (TOWNS.), var. <i>PLUMBEUS</i> Baird.	Cañon streams.
*20.	<i>Sitta Carolinensis</i> LATH., var. <i>ACULEATA</i> Cass.	Pine region.
*21.	<i>Sitta pusilla</i> LATH., var. <i>PYGMEA</i> Vig.	" "
*22.	<i>Certhia familiaris</i> L., var. <i>AMERICANA</i> Bonap.	" "
*23.	<i>Salpinctes obsoletus</i> (SAY).	Stony localities — everywhere.
*24.	<i>Catherpes Mexicanus</i> , var. <i>CONSPERSUS</i> Ridgw.	Rocky gorges or precipitous cañons.
*25.	<i>Troglodytes ædon</i> VIEILL., var. <i>PARKMANNI</i> Aud.	All wooded portions, chiefly on mountains.
26.	<i>Troglodytes parvulus</i> KOCH., var. <i>HYEMALIS</i> Vieill.	
*27.	<i>Telmatodytes palustris</i> (WILS.).	Rushes of lakes, ponds, etc., chiefly in valley portions.
*28.	<i>Anthus Ludovicianus</i> (GM.).	Alpine summits.
*29.	<i>Helminthophaga Virginiae</i> BAIRD.	Foot-hills, scrub oaks and "mahogany" woods.
*30.	<i>Helminthophaga celata</i> (SAY).	Aspen woods, near the pine region.
31.	<i>Helminthophaga peregrina</i> (WILS.).	
32.	<i>Parula Americana</i> (L.).	
*33.	<i>Dendroica æstiva</i> (GM.).	Woods everywhere, chiefly lower portions.
34.	<i>Dendroica coronata</i> (L.).	
*35.	<i>Dendroica coronata</i> (L.), var. <i>AUDUBONI</i> Towns.	Pine region.
36.	<i>Dendroica nigrescens</i> (TOWNS.).	Cedar, mahogany and piñon groves.
*37.	<i>Geothlypis Philadelphia</i> (WILS.), var. <i>MACGILLIVRAYI</i> Aud.	Cañons and ravines of mountains.
*38.	<i>Geothlypis trichas</i> (L.).	Along the lower streams, or marshy meadows.
*39.	<i>Icteria virens</i> (L.), var. <i>LONGICAUDA</i> Lawr.	Along streams below pine region.
40.	<i>Myiodiocetes pusillus</i> (WILS.).	
*41.	<i>Setophaga ruticilla</i> (L.).	Streams below pine region.

No.	Species.	Centre of abundance during breeding season.
*42.	<i>Progne subis</i> (L.).	Pine region and adjoining aspen woods; occasionally lower.
*43.	<i>Petrochelidon lunifrons</i> (SAY).	Cliffs, everywhere below the Alpine region.
*44.	<i>Hirundo horreorum</i> BARTR.	Caves everywhere.
*45.	<i>Tachycineta bicolor</i> (VIEILL.).	With <i>P. subis</i> .
*46.	<i>Tachycineta thalassina</i> (SWAINS.).	In cliffs with <i>Panyptila melanoleuca</i> ? occasionally in holes with <i>T. bicolor</i> and <i>P. subis</i> ?
*47.	<i>Cotyle riparia</i> (L.).	Earth banks, valley portions.
*48.	<i>Stelgidopteryx serripennis</i> (AUD.).	With <i>C. riparia</i> .
*49.	<i>Vireosylvia gilva</i> , var. <i>SWAINSONI</i> Baird.	All deciduous woods.
*50.	<i>Lanivireo solitaria</i> (WILS.), var. <i>PLUMBEA</i> Coues.	Foot-hills with <i>Helminthophaga Virginiae</i> .
51.	<i>Ampelis garrulus</i> L.	
52.	<i>Ampelis cedrorum</i> VIEILL.	
*53.	<i>Myiadestes Townsendii</i> (AUD.).	Cedars of foot-hills and rocky gorges.
54.	<i>Collurio borealis</i> (VIEILL.).	
*55.	<i>Collurio Ludovicianus</i> (L.), var. <i>EXCUBITOROIDES</i> Swains.	Open places at nearly all altitudes.
*56.	<i>Pyrranga Ludoviciana</i> (WILS.).	All wooded places, but chiefly lower part of pine region.
57.	<i>Hesperiphona vespertina</i> , var. <i>MONTANA</i> Ridgw.	
58.	<i>Pinicola enucleator</i> (L.), var. "CANADENSIS Briss."	
*59.	<i>Carpodacus Cassinii</i> BAIRD.	Cottonwoods at lower edge of pine region.
*60.	<i>Carpodacus frontalis</i> (SAY).	Valley portions and foot-hills.
*61.	<i>Chrysomitris pinus</i> (WILS.).	Pine region and adjoining aspen woods.
*62.	<i>Chrysomitris tristis</i> (L.).	Valley portions.
*63.	<i>Chrysomitris psaltria</i> (SAY).	Foot-hills?
64.	<i>Loxia curvirostra</i> L., var. <i>MEXICANA</i> Strickl.	

<i>No.</i>	<i>Species.</i>	<i>Centre of abundance during breeding season.</i>
65.	<b>Leucosticte tephrocotis</b> SWAINS.	
*66.	<b>Leucosticte tephrocotis</b> , <i>var. AUSTRALIS</i> Allen.	Alpine summits.
67.	<b>Plectrophanes nivalis</b> (L.).	
*68.	<b>Plectrophanes ornatus</b> (TOWNS.).	Plains — eastern base of Rocky Mountains.
*69.	<b>Plectrophanes Maccowni</b> LAWR.	With <i>P. ornatus</i> .
70.	<b>Centronyx Bairdii</b> (AUD.). AIKEN.	Foot-hills.
*71.	<b>Coturniculus passerinus</b> , <i>var. PERPALLIDUS</i> Ridgw.	Meadows, val. portions.
72.	<b>Passerculus savanna</b> (WILS.).	
*73.	<b>Passerculus savanna</b> (WILS.), <i>var. ALAUDINUS</i> Bonap.	With <i>C. passerinus</i> .
*74.	<b>Pooecætes gramineus</b> , <i>var. CONFINIS</i> Baird.	Mountain parks, chiefly.
*75.	<b>Chondestes grammaca</b> (SAY).	Artemisia plains; occasionally mt. parks.
*76.	<b>Zonotrichia leucophrys</b> (FORST.).	Mountain parks.
77.	<b>Zonotrichia leucophrys</b> (FORST.). <i>var. INTERMEDIA</i> Ridgway.	
78.	<b>Junco hyemalis</b> (L.).	
79.	<b>Junco hyemalis</b> , <i>var. AIKENI</i> Ridgway.	
*80.	<b>Junco hyemalis</b> (L.), <i>var. CANICEPS</i> Woodh.	Pine region.
81.	<b>Junco hyemalis</b> (L.), <i>var. ANNECTENS</i> Baird.	
82.	<b>Junco hyemalis</b> (L.), <i>var. OREGONUS</i> TOWNS.	
*83.	<b>Poospiza bilineata</b> (CASS.).	Artemisia plains. (Colorado drainage only?)
*84.	<b>Poospiza Bellii</b> , <i>var. NEVADENSIS</i> Ridgw.	With <i>P. bilineata</i> .
85.	<b>Spizella monticola</b> (GM.).	
*86.	<b>Spizella socialis</b> , <i>var. ARIZONÆ</i> Coues.	Woods, chiefly foot-hills.
*87.	<b>Spizella pallida</b> (SW.).	Only east of the foot of the mountains; plains and foot-hills.
*88.	<b>Spizella pallida</b> (SW.), <i>var. BREWERI</i> Cass.	Artemisia plains.

No.	Species.	Centre of abundance during breeding season.
*89.	<i>Melospiza melodia</i> (WILS.), var. <i>FALLAX</i> Baird.	Vicinity of streams up to the pine region.
*90.	<i>Melospiza Lincolni</i> (AUD.).	Mountain parks.
*91.	<i>Passerella iliaca</i> (MERR.), var. <i>SCHISTACEA</i> Baird.	Streams of the mountain parks.
*92.	<i>Calamospiza bicolor</i> (TOWNS.).	Plains, chiefly eastward of the mountains.
*93.	<i>Euspiza Americana</i> (GM.).	Plains east of the moun- tains. Denver (ALLEN).
*94.	<i>Hedymeles</i> <i>melanocephalus</i> (SWAINS.).	Margin of streams below pine region.
95.	<i>Guiraca cærulea</i> (L.).	
96.	<i>Cyanospiza cyanea</i> (L.).	
*97.	<i>Cyanospiza amœna</i> (SAY).	Streams and scrub below pine region.
98.	<i>Cardinalis Virginianus</i> (BRISS.), var. <i>IGNEUS</i> Baird?	
*99.	<i>Pipilo erythrophthalmus</i> (L.), var. <i>ARCTICUS</i> Swains.	Eastern foot-hills and val. streams east of the mts.
*100.	<i>Pipilo erythrophthalmus</i> (L.), var. <i>MEGALONYX</i> Baird.	Western foot-hills and mountain streams.
*101.	<i>Pipilo chlorura</i> (TOWNS.).	Mountain parks.
102.	<i>Pipilo fusca</i> Sw., var. <i>MESOLEUCA</i> Baird.	
103.	<i>Eremophila alpestris</i> (L.), var. "CORNUTA Wils."	
104.	<i>Eremophila alpestris</i> (L.), var. <i>OCCIDENTALIS</i> McCall.	
*105.	<i>Eremophila alpestris</i> (L.), var. <i>CHRYSOLEMA</i> Wagl.	Arid plains.
106.	<i>Dolichonyx oryzivorus</i> (L.), var. <i>ALBINUCHA</i> Ridgw.	
*107.	<i>Molothrus pecoris</i> (GM.).	Chiefly the val. portions.
*108.	<i>Xanthocephalus</i> <i>icterocephalus</i> (BONAP.).	Marshes of the valleys.
*109.	<i>Agelaius phœniceus</i> (L.).	With <i>X. icterocephalus</i> .
*110.	<i>Sturnella magna</i> (L.), var. <i>NEGLECTA</i> Aud.	Meadows below the pine region.
111.	<i>Icterus Baltimore</i> (L.).	
*112.	<i>Icterus Bullockii</i> SWAINS.	All wooded portion be- low the pine region.



No.	Species.	Centre of abundance during breeding season.
113.	<i>Icterus spurius</i> (L.).	Streams of lower portions. Denver (ALLEN).
*114.	<i>Scolecophagus cyanocephalus</i> (WAGL.).	Foot-hills, cedar woods.
115.	<i>Quiscalus purpureus</i> , var. <i>ÆNEUS</i> Ridgw.	
*116.	<i>Corvus corax</i> L., var. <i>CARNIVORUS</i> Bartr.	Everywhere.
*117.	<i>Corvus cryptoleucus</i> COUCH.	
*118.	<i>Picicorvus columbianus</i> (WILS.).	Pine region.
*119.	<i>Gymnokitta cyanocephala</i> (PR. MAX.).	Piñon woods of foot-hills.
*120.	<i>Pica caudata</i> L., var. <i>HUDSONICA</i> J. Sabine.	Streams below the pine region.
*121.	<i>Cyanura Stelleri</i> (GM.), var. <i>MACROLOPHA</i> Baird.	Pine region.
*122.	<i>Cyanocitta Floridana</i> (BARTR.), var. <i>WOODHOUSEI</i> Baird.	Foot-hills and lower mountain streams.
*123.	<i>Perisoreus Canadensis</i> , var. <i>CAPITALIS</i> Baird.	Pine region.
*124.	<i>Tyrannus Carolinensis</i> (L.).	Lower portions and mountain parks.
*125.	<i>Tyrannus verticalis</i> SAY.	With <i>T. Carolinensis</i> .
*126.	<i>Tyrannus vociferans</i> SWAINS.	
*127.	<i>Contopus borealis</i> SWAINS.	Pine region.
*128.	<i>Contopus Richardsonii</i> SWAINS.	All woods below pine reg.
*129.	<i>Myiarchus crinitus</i> (L.), var. <i>CINERASCENS</i> LAWR.	Streams up to the mountain parks.
*130.	<i>Sayornis Sayus</i> BONAP.	Rocky arid portions, plains and cañons.
131.	<i>Empidonax Traillii</i> (AUD ).	
*132.	<i>Empidonax pusillus</i> (SWAINS ).	Willows along streams up to the parks.
*133.	<i>Empidonax flaviventris</i> BAIRD, var. <i>DIFFICILIS</i> Baird.	Pine region.
134.	<i>Empidonax minimus</i> BAIRD.	
135.	<i>Empidonax Hammondii</i> XANTUS.	
*136.	<i>Empidonax obscurus</i> (SWAINS.).	Aspen woods below the pine region.
*137.	<i>Ceryle alcyon</i> (L.).	Chiefly valley portions and parks.

No.	Species.	Centre of abundance during breeding season.
*138.	<b>Chordeiles popetue</b> (VIEILL.), <i>var. HENRYI</i> Cass.	Valleys, foot-hills and parks.
*139.	<b>Antrostomus Nuttalli</b> AUD.	Chiefly valleys and foot-hills; open places.
*140.	<b>Panyptila melanoleuca</b> BAIRD.	Rocky cliffs, chiefly in the mountains. Limestone precipices preferred.
*141.	<b>Trochilus</b> <b>Alexandri</b> BOURC. and Muls.	Green River district, or western slope only? up to the parks.
*142.	<b>Selasphorus</b> <b>platycercus</b> (SWAINS.).	Chiefly the parks.
143.	<b>Geococcyx Californianus</b> (LESS.).	
*144.	<b>Picus villosus</b> (L.), <i>var. HARRISII</i> Aud.	All wooded places.
145.	<b>Picus pubescens</b> (L.), <i>var. GAIRDNERI</i> Aud.	Lower edge of pine region.
146.	<b>Picoides tridactylus</b> (L.), <i>var. DORSALIS</i> Baird.	Pine region near the upper edge.
147.	<b>Sphyrapicus varius</b> (L.).	
*148.	<b>Sphyrapicus varius</b> , <i>var. NUCHALIS</i> Baird.	Aspens just below the pine region.
*149.	<b>Sphyrapicus thyroideus</b> (CASS.)	Pine region.
150.	<b>Centurus Carolinus</b> (L.).	
151.	<b>Melanerpes erythrocephalus</b> (L.).	
*152.	<b>Melanerpes torquatus</b> (WILS.).	Foot-hills and valley streams.
*153.	<b>Colaptes auratus</b> (L.), <i>var. MEXICANUS</i> Swains.	All wooded places.
*154.	<b>Speotyto cunicularia</b> (MOL.), <i>var. HYPOGÆA</i> Bonap.	Artemisia plains and foot-hills.
155.	<b>Glaucidium passerinum</b> (L.), <i>var. CALIFORNICUM</i> ScL.?	
*156.	<b>Bubo Virginianus</b> (GM.), <i>var. ARCTICUS</i> Swains.	All wooded portions.
157.	<b>Scops asio</b> (L.), [ <i>var. MACCALLI</i> Cass. ?].	
*158.	<b>Otus vulgaris</b> (FLEM.), <i>var. WILSONIANUS</i> Less.	Willow thickets along streams.
159.	<b>Falco communis</b> GMEL., <i>var. ANATUM</i> Bonap.	Rocky places in vicinity of water.

No.	Species.	Centre of abundance during breeding season.
*160.	<b>Falco lanarius</b> L., var. <b>POLYAGRUS</b> Cass.	Rocky cañons and open plains.
161.	<b>Falco columbarius</b> LINN.	
162.	<b>Falco Richardsonii</b> RIDGW.	
*163.	<b>Falco sparverius</b> L.	All timbered places.
*164.	<b>Circus cyaneus</b> (L.), var. <b>HUDSONIUS</b> L.	Marshes, chiefly in the valleys.
*165.	<b>Nisus fuscus</b> (GM.).	Lower wooded districts.
?166.	<b>Nisus Cooperi</b> (BONAP.).	
*167.	<b>Nisus Cooperi</b> (BONAP.), var. <b>MEXICANUS</b> Swains.	With <i>N. fuscus</i> .
168.	<b>Astur palumbarius</b> (L.), var. <b>ATRICAPILLUS</b> Wils.	
*169.	<b>Buteo Swainsoni</b> BONAP.	Everywhere; breeds chiefly among scattered aspens in parks and scrub oaks on foot-hills.
*170.	<b>Buteo borealis</b> (GM.), var. <b>CALURUS</b> Cass.	Everywhere.
*171.	<b>Archibuteo ferrugineus</b> (LICHT.).	
172.	<b>Archibuteo lagopus</b> (BRÜNN.), var. <b>SANCTI-JOHANNIS</b> Gm.	
*173.	<b>Aquila chrysaëtus</b> L., var. <b>CANADENSIS</b> L.	Rocky portions of the mountains.
174.	<b>Haliaëtus leucocephalus</b> (BRISS.).	Vicinity of rivers and lakes.
175.	<b>Pandion haliaëtus</b> (L.), var. <b>CAROLINENSIS</b> Gm.	With <i>H. leucocephalus</i> .
*176.	<b>Cathartes aura</b> (L.).	Everywhere below the pine region.
*177.	<b>Zenædura Carolinensis</b> (L.).	Everywhere below the pine region.
*178.	<b>Meleagris gallopavo</b> L.	
*179.	<b>Canace obscura</b> (SAY).	Pine region and parks.
*180.	<b>Bonasa umbellus</b> (L.), var. <b>UMBELLOIDES</b> Douglas.	Pine region.
*181.	<b>Centrocercus urophasianus</b> (BONAP.).	Artemisia plains.
*182.	<b>Pediocaëtes phasianellus</b> (L.), var. <b>COLUMBIANUS</b> Ord.	Rye grass meadows.
*183.	<b>Lagopus leucurus</b> SWAINS.	Alpine summits.

<i>No.</i>	<i>Species.</i>	<i>Centre of abundance during breeding season.</i>
184.	<i>Grus Americanus</i> (L.).	
*185.	<i>Grus Canadensis</i> (L.).	Marshy meadows, chiefly in valleys.
*186.	<i>Ardea herodias</i> L.	Lower portions.
187.	<i>Demiegretta</i> ——sp. ?	
*188.	<i>Botaurus lentiginosus</i> STEPH.	Lower portions.
*189.	<i>Ibis guarauna</i> (GM.).	Marshes of valleys.
*190.	<i>Ægialitis vociferus</i> (L.).	Streams below the pine region.
*191.	<i>Ægialitis montanus</i> (TOWNS.).	
192.	<i>Charadrius pluvialis</i> (L.), <i>var. VIRGINICUS</i> Borck.	
193.	<i>Gallinago gallinaria</i> (GM.), <i>var. WILSONII</i> Temm.	
194.	<i>Macrorhamphus griseus</i> (GM.).	
195.	<i>Pelidna alpina</i> , <i>var. AMERICANA</i> Cass.	
196.	<i>Actodromus maculatus</i> (VIEILL.).	
197.	<i>Actodromus Bairdii</i> COUES.	
198.	<i>Actodromus minutilla</i> (VIEILL.).	
199.	<i>Ereunetes pusillus</i> (L.).	
*200.	<i>Symphemia semipalmata</i> (GM.).	Streams or marshes of valleys and parks.
201.	<i>Gambetta melanoleuca</i> (GM.).	
202.	<i>Gambetta flavipes</i> (GM.).	
*203.	<i>Rhyacophilus ochropus</i> (L.), <i>var. SOLITARIUS</i> (Wils.).	Valleys and parks.
*204.	<i>Tringrides hypoleucus</i> (L.), <i>var. MACULARIUS</i> (L.).	With <i>R. solitarius</i> .
205.	<i>Actiturus Bartramius</i> (WILS.).	Prairies and meadows, chiefly east of the mts.
*206.	<i>Numenius longirostris</i> WILS.	Meadows of valleys.
*207.	<i>Recurvirostra Americana</i> GM.	Marshes, chiefly in the vicinity of alkaline ponds.
*208.	<i>Himantopus nigricollis</i> VIEILL.	With <i>R. Americana</i> .
*209.	<i>Phalaropus Wilsonii</i> SAB.	Ponds of val. portions.
210.	<i>Rallus Virginianus</i> L.	
*211.	<i>Porzana Carolina</i> VIEILL.	Marshes of parks and valleys.
*212.	<i>Fulica Americana</i> GM.	Ponds, chiefly in valleys.

No.	Species.	Centre of abundance during breeding season.
213.	<b>Cygnus Americanus</b> SHARPLESS.	
*214	<b>Branta Canadensis</b> (L.).	Secluded lakes.
215.	<b>Branta Canadensis</b> (L.), var. HUTCHINSH Rich.	
*216.	<b>Anas boschas</b> L.	Ponds and marshy mead. chiefly in the valleys.
217.	<b>Anas obscura</b> GM.	
*218.	<b>Dafla acuta</b> (L.).	With <i>A. boschas</i> .*
*219.	<b>Nettion Carolinensis</b> (GM.).	
*220.	<b>Querquedula discors</b> (L.).	
*221.	<b>Querquedula</b> cyanoptera (VIEILL.).	
*222.	<b>Spatula clypeata</b> (L.).	
*223.	<b>Chaulelasmus streperus</b> (L.).	
*224.	<b>Mareca Americana</b> (GM.).	
225.	<b>Aix sponsa</b> (L.).	
226.	<b>Fulix marila</b> (L.).	
227.	<b>Fulix marila</b> (L.). var. AFFINIS Forst.	
228.	<b>Fulix collaris</b> (DONOV.).	
229.	<b>Aythya Americana</b> (EYTON).	
230.	<b>Aythya vallisneria</b> (WILS.).	
231.	<b>Bucephala Americana</b> (BON.).	
232.	<b>Bucephala albeola</b> (L.).	
*233.	<b>Erismatura rubida</b> (WILS.).	
234.	<b>Mergus merganser</b> L., var. AMERICANUS Cass.	
235.	<b>Lophodytes cucullatus</b> (L.).	
*236.	<b>Pelecanus erythrorhynchus</b> GM.	
237.	<b>Larus</b> — sp?	
238.	<b>Larus Delawareensis</b> ORD.	
*239.	<b>Sterna Forsteri</b> NUTT.	
240.	<b>Hydrochelidon fissipes</b> (L.).	
241.	<b>Colymbus glacialis</b> L., var. TORQUATUS Brünn.	
242.	<b>Podiceps auritus</b> (L.), var. CALIFORNICUS Herm.	
243.	<b>Podylimbus podiceps</b> (L.).	

---

\* The ducks and other *Natatores* nearly all breed in the same localities.



## NOTES ON THE SPECIES IN THE PRECEDING CATALOGUE.

11. *SIALIA MEXICANA*. I have not seen specimens of this species from the Rocky Mountains, and do not know whether they present any features of a geographical race different from that found on the Pacific coast. On the eastern base of the Sierra Nevada, I obtained specimens without a trace of brown on the back, and with that of the breast divided into two isolated patches—one on each side—by a blue “isthmus,” connecting the blue of the throat and that of the abdomen.

16. *LOPHOPHANES INORNATUS*. In this species the difference between Pacific coast and Rocky Mountain specimens is very marked, the former being much browner than the latter; but there being no difference in proportions, or other respects, the differentiation scarcely amounts to that of a race.

24. *CATHERPES MEXICANUS*, var. *CONSPERSUS* Ridgway. See *Am. Nat.*, vol. vii, No. 10, Oct., 1873, p. 603.

57. *HESPERIPHONA VESPERTINA*, var. *MONTANA* Ridgway. See “*Birds of California*,” I, p. 175. Two specimens from Mr. Charles Douglas, of Waukegan, Illinois, collected at the latter place in the winter of 1873 (January or February), are perfectly typical examples of this southern race, the characteristic features of which are the absence of the white spots on tail feathers, tail-coverts and primaries, and much narrower yellow frontlet than in the northern form. In this case we see, as in that of *Chrysomitris psaltria*, an instance of increased melanism to the southward.

64. *LOXIA CURVIROSTRA*, var. *MEXICANA*. Though this is the resident form on the high mountains of Colorado, the var. *Americana* no doubt occurs in winter. I obtained the latter in the East Humboldt Mountains in September, and it was then common there. *L. leucoptera* was also common at the same time, and a beautiful male was seen about the middle of August on that range, leading to the suspicion that the species may breed on the higher portions of the Rocky Mountains and justifying the belief that it will at least be found in winter on the mountains of Colorado.

66. *LEUCOSTICTE TEPHROCOTIS*, var. *AUSTRALIS* Allen. This form was first noticed by Mr. Allen in the “*American Naturalist*,” and subsequently in the “*Bulletin of the Museum of Comparative Zoology*,” as cited below. Its synonymy and characters are as follows:—  
*Leucosticte tephrocotis*, var. *Australis* ALLEN.

*Leucosticte tephrocotis* ALLEN, Am. Nat., vi, No. 5, May, 1872. *Ib.*, Bull. Mus. Comp. Zool., vol. iii, No. 6, p. 177.

CH. Similar to var. *tephrocotis*, but without any gray on the head, the red of the abdomen and wing-coverts bright carmine, instead of dilute rose color, and the bill deep black, instead of mostly yellow. Prevailing color umber brown (more earthy than in *tephrocotis*) becoming darker on the head, and approaching to black on the forehead. Nasal tufts white. Wings and tail dusky, the secondaries and primaries skirted with paler; lesser and middle wing-coverts, and upper and lower tail-coverts, broadly tipped with rosy carmine, producing nearly uniform patches. Abdominal region with the feathers broadly tipped with bright carmine or intense crimson, this covering, nearly uniformly, the whole surface. Bill and feet deep black.

*Male* (original No. 963, Mt. Lincoln, Colorado Territory, July 25, 1871; J. A. Allen). Wing, 4.20; tail, 3.10; culmen, .45; tarsus, .70; middle toe, .60.

*Female* (No. 960, same locality, etc.). Wing, 4.00; tail, 3.00. Colors paler and duller, with the red almost obsolete.

*Hab.* Mt. Lincoln, Colorado. Breeding above the timber line (Allen).

70. *CENTRONYX BAIRDIÍ* (Aud.) = *C. OCHROCEPHALUS* Aiken. Mr. Aiken has collected a second specimen of this bird at the same locality where the first one was procured, in El Paso Co. This one, collected May 6, 1873, being in spring plumage is so decidedly intermediate between Audubon's original type of *C. Bairdii* (in worn, faded midsummer dress) and the autumnal specimen which Mr. Aiken characterized as *C. ochrocephalus* (Am. Nat., vol. vii, No. 4, p. 236) that there is every probability of all three specimens being the same species in different seasonal stages. Mr. Aiken is not to blame for describing his first specimen as a new species, for he, not having an opportunity to compare it with the original *C. Bairdii*, trusted the identification of the specimen to me, and at my suggestion described it as new, the great difference between the two specimens warranting, in my opinion at the time, a specific separation.

The last specimen collected by Mr. Aiken is in my collection (No. 2,141). Its measurements are as follows:—wing, 2.80; tail, 2.10; culmen, .45; tarsus, .80; middle toe, .60. "Length, 5.62; extent, 9.04. Legs and lower mandible, flesh color; upper mandible, horn color, the tip lighter; toes and claws dusky." No. 1,266, Aiken's Coll., El Paso Co., Colorado, May 6, 1873.

Dr. Elliott Coues, the naturalist of the Northern Boundary Survey, in charge of Commissioner A. Campbell, has taken during the past summer, but since Mr. Aiken's captures, about seventy specimens of

this species along the northern border of Dakota, in the neighborhood of the head waters of the Souris River. For a very interesting article in this connection the reader is referred to the "American Naturalist," vol. vii, Nov., 1873, p. 695.

I am also informed by letter from Mr. H. W. Henshaw, the naturalist of the government exploring expedition in New Mexico and Arizona, in charge of Lieutenant George M. Wheeler, U. S. Engineer Corps, that he has collected about thirty specimens during the course of their summer's explorations, in southeastern Arizona and western New Mexico. This species cannot, therefore, be longer considered one of the rare birds of North America.

71. COTURNICULUS PASSERINUS, var. PERPALLIDUS Ridgway. See Coues' Key, p. 137.

79. JUNCO HYEMALIS, var. AIKENI Ridgway. See Am. Nat., vol. vii, No. 10, p. 615; Oct., 1873.

84. POOSPIZA BELLII, var. NEVADENSIS Ridgway.

CH. Like *P. Bellii*, but much larger and all the colors paler; purer ashly above, with very distinct streaks on the back. Wing, 3.20 (instead of 2.50); tail, 3.20 (instead of 2.50); culmen, .35; tarsus, .76.

Hab. Entire area of the Middle Province of the U. S.; east to Green River, Wyoming; northward resident to beyond the parallel of 40°.

87. SPIZELLA PALLIDA. The possibility of *S. pallida* Swain. and *S. Breweri* Cass. being regional modifications of the same species is rendered very doubtful by two facts, viz.: (1), that they have been taken together at the same locality, and (2) that intermediate specimens have not been seen. Mr. Allen collected numerous typical examples of both forms at Cheyenne, yet his collections did not contain a single specimen which could not be referred immediately to one or the other. *S. pallida* replaces *S. Breweri* in Lower California, thus having a somewhat remarkable range, exactly paralleled, however, by that of *Zonotrichia leucophrys*, which is abundant at the cape to the exclusion of var. *gambelii*.

91. PASSERELLA ILIACA (L.), var. SCHISTACEA Baird. Though no specimens intermediate between *iliaca* and *schistacea* have yet been found, Dr. Cooper has recently (Nov., 1872) collected, at Saticoy, California, a specimen which combines about equally the characters of *iliaca* and *Townsendii*. The latter grades into *schistacea* through Fort Tejon specimens.

98. For a synopsis of the genus *Cardinalis*, see Am. Nat., vol. vii, No. 10, p. 618; Oct., 1873.

102. *PIPILO FUSCA* (Swains.), var. *MESOLEUCA* Baird. That the *P. fusca* of Swainson and the *P. mesoleuca* of Baird are not exactly the same bird is proven by a comparison of Mexican examples with specimens from the Colorado Province of the U. S. (Sée Coues' Key, p. 152.)

100. *PIPILO ERYTHROPTHALMUS* (Sw.), var. *MEGALONYX* Baird. On p. 117 of his "Ornithological Reconnaissance," Mr. Allen remarks in relation to the black Pipilos that "in Mexico, *P. megalonyx* is well known to grade through *P. macronyx* into *P. maculatus*." This is a great mistake, for though *megalonyx* certainly does run into *maculatus*, the latter is the southern extreme of differentiation in the species, *P. macronyx* being a widely distinct species, about as nearly related to *P. chlorura* as to the forms of *erythrophthalmus*.

103, 104 and 105. *EREMOPHILA ALPESTRIS* (L.), vars. "COR-NUTA" Wils., *OCCIDENTALIS* McCall, and *CHRYSOLÆMA* Wagl. These are three geographical races of one species, which become mingled in the course of their migrations. Var. *cornuta*, most like true *alpestris* of Europe, and indeed hardly distinguishable, breeds in the northern portions of the eastern region from Hudson's Bay to Illinois; var. *occidentalis* is a pallid, white-throated form which breeds on the northern plains; var. *chrysolæma* is a resident southern or subtropical form, of smaller size, longer bill and much deeper colors. All three become mixed in winter.

106. *DOLICHONYX ORYZIVORUS*, var. *ALBINUCHA* Ridgway.

CH. Similar to eastern specimens, var. *oryzivorus*, but the black more intense and uniform, the nuchal patch immaculate creamy-white, or very pale ochraceous; scapulars and lower rump pure white, not tinged with ash, and upper part of the rump scarcely tinged with ash. Wing, 3·90-4·10; tail, 3·10; culmen, ·55-·60; depth of bill, ·30-·35; tarsus, 1·10; middle toe, ·85-·90.

Hab. Missonri Plains and Rocky Mountains, west to Ruby Valley, Nevada; Salt Lake Valley.

115. *QUISCALUS PURPUREUS*, var. *ÆNEUS* Ridgway. In his "Key to North American Birds," Dr. Coues is at fault in several respects in his statements regarding the purple grackles of the United States. Of the present form, Dr. Coues remarks (p. 161):—

"Obs. The *Quiscalus æneus*, lately described as a new species by Mr. Ridgway, appears to be based upon a special plumage of *Q. purpureus*; and since it does not prove to be confined, as its describer believed, to any particular region, I should judge it not entitled to rank as a geographical variety." Both of these remarks need correction. In the first place, my *Quiscalus æneus* was based upon a form

which was distributed, as its habitat was then known, over the entire region between the Alleghany and Rocky Mountains, and also the interior of British America, besides the eastern portion of the latter country, and southward to Maine. Not a single specimen had then, nor has since, been seen from any part of this vast extent of territory, which approached in characters the form peculiar to the southern Atlantic states — *Q. purpureus*. The latter was at that time supposed to extend northward to Nova Scotia; this mistake being brought about by the entire want of specimens from the New England states. Abundant material since received from all points along the Atlantic coast, however, shows that only *Q. æneus* is found from New York City and Long Island northeastward, and that it is only as far north as northern New Jersey and eastern Pennsylvania that *purpureus* extends, except as a straggler. Even at Washington, D. C., *æneus* is by no means rare, but, strange to say, when mixed with *purpureus*, still retains its own characteristics. In the parks of that city I have seen pairs of both species walking tamely about on the grass, *but never saw the two forms paired together*, and could even distinguish the two by their different appearance and actions before I was near enough to distinguish by coloration. The proportionate numbers of the two at Washington are about one pair of *æneus* to fifty or seventy-five pairs of *purpureus*. Nearer the coast, and especially farther southward, east of the Alleghanies, the former disappears altogether. My present view is, that *æneus*, *purpureus* and *aglaeus*, are three climatic, or geographical races, of one species; at least they are descended from one primitive stock; *purpureus* is intermediate between the two opposite extremes or most widely differentiated forms, *æneus* and *aglaeus*, but more so in habitat than in characters, for while *purpureus* passes by a gradual transition into *aglaeus* through specimens from northern Florida, *æneus* is almost abruptly separated, and, even when associated geographically, preserves its own distinctive characters with such unusual uniformity that it is a question whether it is not already differentiated beyond the "varietal stage."

123. PERISOREUS CANADENSIS, var. CAPITALIS Baird.

CH. (61,084, Henry's Fork, Wyoming Ter.; F. V. Hayden.) Above fine light bluish plumbeous, becoming much lighter on the anterior portion of the back; tertials, secondaries, wing-coverts, primaries and tail feathers passing into whitish terminally, forming on the latter quite broad and distinct tips. A nuchal patch of a tint slightly darker than the back, and separated from the latter by the hoary whitish of the anterior dorsal region. Whole of the head, except the nuchal patch, with the anterior lower parts, as far as the breast, pure white; rest of the lower parts ashy-white, becoming gradually more ashy



posteriorly. Wing, 5.80; tail, 6.00; culmen, 1.00. *Young* (18,440, Ft. Benton, April 23, J. A. Mullen). Generally ashy plumbeous, with a decided bluish cast to the wings and tail; orbital region, lorés, forehead and nasal tufts blackish; crown, a broad space below the eye, from the bill across the auricular, with the middle of the abdomen, pale hoary ash. Wings and tail as in the adult.

*Hab.* Rocky Mountains north of New Mexico.

The three very well marked climatic races of this species may be defined as follows:

A. Dusky nuchal hood reaching forward to, or to in front of, the eyes; sooty plumbeous black.

1. White frontal patch narrower than the length of the bill, blending gradually with the blackish of the crown. Upper parts umber brownish. *Young*. Entirely plumbeous-brown, the feathers of the crown bordered with paler. Beneath paler. Wing, 5.50; tail, 5.40; culmen, .90; depth of bill, .30. *Hab.* Northwest coast, from the Columbia to Alaska. *Var. obscurus.\**

2. White frontal patch much broader than the length of the bill; abruptly defined, with a convex outline, against the dusky of the occiput. Upper parts dull plumbeous. *Young*. Entirely uniform dark plumbeous. Wing, 5.25; tail, 5.80; culmen, .95; depth of bill, .35. *Hab.* British America, from the Yukon district of Alaska to Maine and Labrador. *Var. Canadensis.*

B. Dusky nuchal hood confined to the nape, and bluish plumbeous.

3. White frontal patch covering the whole pileum, and melting gradually into the plumbeous of the nape; upper parts hoary plumbeous, inclining to bluish-ash. *Young*. Bluish plumbeous, inclining to ashy-white on the crown and cheeks. Wing, 6.00; tail, 6.00; culmen, 1.00; depth of bill, .31. *Hab.* Rocky Mountains of the United States.

*Var. capitalis.†*

141. The *STELLULA CALLIOPE* Gould is also likely to occur on the western slope of Colorado. I found it as far east as the East Humboldt Mountains in eastern Nevada.

146. *PICOIDES TRIDACTYLUS* (L.), var. *DORSALIS* Baird. The American three-toed woodpeckers are clearly referrible to the

\* *Perisoreus Canadensis*, var. *obscurus* Ridgway, MSS.

† *Perisoreus Canadensis*, var. *capitalis* Baird, MSS.

European species (*P. tridactylus* L.). The latter has two well-marked climatic races — a large, very light colored northern one (var. *crissoleucus* Brandt) and a smaller, darker southern one (var. *tridactylus* L.). The former has the back white longitudinally, somewhat like our var. *dorsalis*, but differs very decidedly in other respects. One is hardly justified in saying that “all the species of this genus are unquestionably modified derivatives of one circumpolar stock” (see Coues, Key, p. 194); and the statement that “the American seem to have become completely differentiated from the Asiatic and European” is equally objectionable. A comparison of *dorsalis* and *Americanus* with the Old World forms, shows plainly that the amount of differentiation scarcely comes up to the qualifications of a difference of race. A comparison of *arcticus* with the rest also shows that bird to possess every requirement of an independent, and truly distinct species.

149. SPHYRAPICUS THYROIDEUS (Cass.). Though this species is not given in Mr. Allen's list, he nevertheless collected it in Colorado, but the specimen being in immature plumage was identified as *S. nuchalis*.

155. GLAUCIDIUM (PASSERINUM, var. CALIFORNICUM?). Not having seen the specimens of the pygmy owl collected by Mr. Aiken in Colorado, I cannot say positively that they belong to this species. They are quite as likely to be *G. ferrugineum*, which was collected in Arizona by Lieut. Charles Bendire, U. S. A. (See Am. Nat. vi, 370, and Coues' Key, p. 206.)

178. MELEAGRIS GALLOPAVO. Mr. Aiken has not informed me whether the Colorado bird is var. *gallopavo*, extending northward along the mountains, or the eastern form (var. *sylvestris*) reaching westward to the mountains by following the wooded valleys of the rivers across the plains. It is most likely, however, to be the former.

187. DEMIEGRETTA sp? This is probably the *D. Ludoviciana*. See ALLEN, Bull. Mus. Comp. Zool., Vol. iii, No. 6, p. 153.

237. LARUS sp.? This gull is probably the *L. argentatus*, var. *Californicus*, which I found breeding very abundantly at Pyramid Lake, Nevada, and less numerous at Great Salt Lake, on Carrington Island.

It is difficult to see Dr. Coues' reasons for referring this form to *Delawarensis*, since it has no points at all in common with the latter species, from which it is perfectly distinct, though clearly referrible to *argentatus*.

## REGULAR MEETING, MONDAY, NOV. 17, 1873.

MEETING this evening at 7.30 o'clock. The PRESIDENT in the chair. Records of preceding meeting read.

The SECRETARY announced the following correspondence :—

From Mary J. Safford Blake, Boston, Nov. 6; Samuel A. Drake, Boston, Nov. 12; A. P. Hamblet, Oct. 22; C. H. Higbee, Boston, Nov. 11; T. Morong, Ipswich, Nov.; Edward Palmer, Cambridge, Oct. 2; W. S. Perry, Geneva, Nov. 3, 11; C. P. Preston, Danvers, Nov. 10; John L. Robinson, Wenham, Nov. 15; A. Stevens, North Andover, Oct. 28; John A. Vinton, Winchester, Nov. 5, 15; Ashbel Woodward, Franklin, Conn., Nov. 3; William H. Yeomans, Columbia, Conn., Sept. 22; Cincinnati Public Library, Oct. 31; New York Genealogical and Biographical Society, Nov. 15; Wisconsin State Historical Society, Nov. 11; U. S. Dep't Agriculture, Washington, Nov. 12; U. S. Naval Observatory, Washington, Nov. 3.

The LIBRARIAN reported the following additions :—

*By Donation.*

BALLARD, JOSEPH, of Boston. Account of the Poor Fund and other Charities held in trust by the Old South Society of Boston. 1 vol. 8vo.

BEMIS, LUKE, of West Chester, Pa. Historical Sketches of Plymouth, Luzerne Co., Pa., by H. B. Wright. 1 vol. 8vo.

DIKE, MRS. JOHN, HEIRS OF THE LATE. Newton's Works. 5 vols. 8vo. Miller's Retrospect. 2 vols. 8vo. Evangelical Magazine. 1 vol. 8vo. Sermons by S. Worcester, D.D. 1 vol. 8vo. Sentiments on Resignation. 1 vol. 12mo. Life of Miss Anthony. 1 vol. 8vo. Letters on Early Rising. 1 vol. 12mo. South-Side View of Slavery. 1 vol. 12mo. Sermons by E. Thayer. 1 vol. 12mo. Review of the Mexican War. 1 vol. 12mo. Letters and Papers of the late Rev. Thomas Scott, D.D. 1 vol. 12mo. Family Prayers. 1 vol. 12mo. Force of Truth. 1 vol. 18mo. Scripture Promises, by S. Clark. 1 vol. 12mo. The Family Instructor. 1 vol. 12mo. Moral Sketches by H. More. 1 vol. 16mo. Chalmers' Works. 3 vols. 12mo. Salem Directories for 1837, 1842, 1846, 1851, 1855. 5 vols. 16mo. Monthly Anthology. 1 vol. 8vo. Beauties of the Spectator. 1 vol. 12mo. Boston Almanac, 1844. 1 vol. 16mo. Questions of Scripture Biography. 3 vols. 16mo. Land of Canaan. 1 vol. 12mo. Almanacs, 39. The Christian World, 91 nos. The Panoplist, 29 nos. The American and Foreign Christian World, 58 nos. Missionary Herald, 75 nos. The Home Missionary, 47 nos. African Repository, 64 nos. Miscellaneous pamphlets, 50.

UNKNOWN. Memoirs of the Marstons of Salem. 8vo pamph.

U. S. NAVAL OBSERVATORY, of Washington, D. C. Washington Astronomical Observations, 1851-1852. 1 vol. 4to. Astronomical and Meteorological Observations, 1870. 1 vol. 4to. Catalogue of Stars, 1845-1871. 1 vol. 4to. Washington Observations for 1870, Appendix. 1 vol. 4to. Washington Zones, 1846-1849. 3 vols. 4to.

J. P. Franks, of Salem, was elected a resident member.

# BULLETIN

OF THE

## ESSEX INSTITUTE.

---

VOL. 5.                      SALEM, MASS., DEC., 1873.                      No. 12.

One Dollar a Year in Advance. 10 Cents a Single Copy.

---

REGULAR MEETING, MONDAY, NOV. 17, 1873.

[Continued.]

MR. F. W. PUTNAM presented the following communication :—

ON SOME NEW FORMS OF AMERICAN BIRDS.\*

BY SPENCER F. BAIRD AND ROBERT RIDGWAY.

THE following diagnoses conclude a series commenced in the October number of the "American Naturalist," and are believed to be all the undescribed North American land birds known to the authors at the present time. A more detailed account of them is given in our "History of North American Birds," soon to be issued by Little & Brown, Boston.

*Leucosticte tephrocotis*, var. *australis* ALLEN.

*Leucosticte tephrocotis* ALLEN, Amer. Nat., vi, May, 1872. IB. Bull. Mus. Comp. Zool., iii, No. 6, pp. 121, 162 and 177.

*Leucosticte tephrocotis*, var. *australis* ALLEN. (Ms. name on labels.)

---

\*Continued from the October number of the "American Naturalist," Vol. vii, 1873.

CH. Differing from var. *tephrocotis* in having no gray on the head, the bill deep black, and the red an intense carmine; the latter, in high plumaged males, reaches forward, in a strong tinge, to the chin and cheeks. *Hab.* Mt. Lincoln, Colorado. Breeding above the timber line, at altitude of about 12,000 feet. (Types, ♂, No. 963, J. A. A.; ♀, No. 960, J. A. A., Mt. Lincoln, Colorado, July 25, 1871.)

*Ammodromus maritimus*, var. *nigrescens* RIDGWAY.

CH. Brownish black above, the outer edges of the dorsal feathers narrowly whitish. Beneath pure white, thickly streaked everywhere with black. Supra-loral spot and bend of wing bright yellow. Wing, 2.40; tail, 2.45; culmen, .45; tarsus, .90; middle toe, .60. *Hab.* Southern Florida (Indian River). (Type, No. 1855, ♂ *ad.*, Indian River, Fla., Apr. 4, 1872. Mus. R. R.)

REMARKS.—We owe this new, and very remarkable, race to the indefatigable researches of Mr. C. J. Maynard, who procured a number of specimens. The form is a very striking and extreme example of the melanistic tendency to the southward.

*Zonotrichia leucophrys*, var. *intermedia* RIDGWAY.

CH. Resembling var. *Gambeli* of the Pacific coast, but colors purer and grayer, the dorsal streaks chestnut-brown instead of sooty-black, and the ash of the breast purer. *Hab.* Middle Province of the U. S., north to Alaska in the interior.

*Poospiza Bellii*, var. *Nevadensis* RIDGWAY.

CH. Like var. *Bellii*, but much larger, and the colors lighter and grayer, the back with very distinct streaks. *Hab.* Great Basin of the U. S., throughout its whole extent. (Type, No. 53, 516, ♂ *ad.*, West Humboldt Mts., Nevada.)

*Dolichonyx oryzivorus*, var. *albinucha* RIDGWAY.

CH. Nuchal patch pure white, or immaculate creamy white. Scapulars and lower back scarcely tinged with ashy. Black of the plumage more intense and uniform than in eastern *oryzivorus*. *Hab.* Plains of the U. S., from Missouri tributaries to eastern border of Great Basin. (Type, No. 1739, Mus. R. R., ♂ *ad.*, Ogden, Utah.)



*Perisoreus Canadensis*, var. *capitalis* BAIRD.

CH. Similar to *Canadensis*, but much lighter colored, and with the bill slenderer. The head wholly white, except the nape, which is plumbeous; plumbeous of the body of a fine ashy tint. *Young* more uniformly colored, but altogether paler than the corresponding age of *Canadensis*. *Hab.* Rocky Mountains of the U. S. (Types, No. 61,084, Mus. S. I., *adult*, Henry's Fork, Wyoming Ter. and No. 18,440, *young*, Fort Benton.)

*Perisoreus Canadensis*, var. *obscurus* RIDGWAY.

CH. Much darker than *Canadensis*, the head blackish to the forehead, which is only narrowly whitish. *Young* much darker than that of *Canadensis*. *Hab.* Northwestern coast, from Oregon to Alaska. (Types, No. 8,454, *adult*, Shoalwater Bay, Washington Ter., and No. 5,904, *young*, same locality.)

*Cyanocitta ultramarina*, var. *Arizonæ* RIDGWAY.

CH. Similar to variety *sordida*, of eastern Mexico, but blue much paler and more greenish, the whole dorsal region decidedly ashy. *Hab.* Southern Rocky Mountain region of U. S. (Types, No. 18,279, *ad.*, Fort Buchanan, Arizona; and No. 8,469, *juv.*, Copper Mines, Arizona.)

*Cyanocitta Floridana*, var. *Sumichrasti* RIDGWAY.

CH. Most nearly resembling var. *Californica*, but the superciliary white streak nearly obsolete, and the wings and tail much longer. *Hab.* Table lands of Mexico, on the eastern side. (Type, No. 42,149, Orizaba, Mexico.)

*Canace obscura*, var. *fuliginosa* RIDGWAY.

CH. Most nearly resembling var. *obscura* (as distinguished from var. *Richardsoni*), but the colors much darker in shade, and the dark areas more prevalent. In specimens from the Sitka district the upper parts much washed with castaneous-rusty. *Hab.* Northwest coast, from Oregon to Sitka. (Types, No. 11,505, ♂ *ad.*, Cascade Mts.; No. 11,826, ♀ *ad.*, and No. 11,827, *juv.*, Chiloweyuck Depot, Washington Ter.)

*Cupidonia cupido*, var. *pallidicincta* RIDGWAY.

CH. Much smaller, and lighter colored than var. *cupido*. Upper parts about equally barred with pale grayish ochraceous and brownish-

dusky; beneath white, with faint, but sharply defined narrow bars of pale grayish brown. *Male* (No. 10,007, Prairies of Texas); Wing, 8.30; tail, 4.20; tarsus, 1.70; middle toe, 1.50. *Female* (No. 10,005, same locality); wing, 8.20. *Hab.* Southwestern prairies—Staked Plains?

*Strix flammea*, var. *Guatemalæ* RIDGWAY.

CH. In color resembling var. *flammea* of Europe, more than var. *pratincola* of North America, but more uniform above, and more coarsely speckled below. Wing, 11.30–13.00; tail, 5.30–5.90; tarsus, 2.55–2.95 (extremes of a series of thirteen specimens). *Hab.* Central America, from Panama to Guatemala.

*Syrnium nebulosum*, var. *Sartorii* RIDGWAY.

CH. Larger than the average of var. *nebulosum*, and the colors much darker and less tawny, being merely blackish sepia and clear white; face without the darker concentric rings of the North American form. Wing, 14.80; tail, 9.00. *Hab.* Eastern Mexico (Mirador). (Type, No. 43,131, ♀ *ad.*, Mirador; “pine region.” Dr. C. Sartorius.)

REMARKS.—This form is very different from var. *fulvescens* (Scl. and Salv. P. Z. S., 1868, 58) from Guatemala. I have seen a specimen of the latter collected by Van Patten, and now in the Museum of the Boston Society. The var. *nebulosum* stands between the two, being intermediate in nearly all its characters.

*Scops asio*, var. *Floridanus* RIDGWAY.

CH. Much smaller than var. *asio* and more richly colored in the rufous plumage, the red prevailing on the lower parts, where it is much broken into transverse bars. Wing, 5.50–6.00; tail, 2.75–3.10. *Hab.* Florida. (Type, No. 5,857, Indian River, Florida.)

*Scops asio*, var. *enano* LAWRENCE. MS.

CH. Small, like var. *Floridana*, but the colors different. Gray plumage like that of var. *asio*, but the mottling above much coarser, and the nape with a strongly indicated collar of rounded white spots, in pairs on opposite webs. The red plumage not seen. *Hab.* Eastern Mexico, south to Guatemala.

REMARKS.—This well-marked race is founded upon a specimen from Mexico in Mr. Lawrence's cabinet, and one from Guatemala in the Museum of the Boston Society. The two are alike in colors, but, as might be expected, the southern one is smaller. This form resembles very closely the *S. atricapilla* (Natt.)—Temm. Pl. Col. 145—but may be immediately distinguished by the strongly haired toes, they being perfectly naked in *S. atricapilla*.

*Falco communis*, var. *Pealei* RIDGWAY.

??? *Falco niger* Gmel. S. N., 1789, 270.

*Falco polyagrus* Cass. B. Cal. and Tex., pl. xvi (dark figure!).

CH. Entirely brownish-black, uniform above, faintly streaked with white below. No transverse bars on inner webs of tail feathers or primaries. Wings, 14·96–15·66; tail, 8·50; culmen, ·95–1·10; tarsus, 2·00; middle toe, 2·15–2·20. *Hab.* Northwest coast of North America, from Oregon to Sitka. (Types, No. 12,622, ♀ *ad.*, Oregon. Type of Cassin's figure above quoted! No. 45,814, ♀ *ad.* Sitka, Alaska.)

*Falco columbarius*, var. *Suckleyi* RIDGWAY.

CH. A miniature of *F. communis*, var. *Pealei*. Above, plain brownish-black, the tail tipped with white, but otherwise unmarked. Beneath pale ochraceous, broadly striped with sooty black. Wing, 7·35–8·56; tail, 5·25–5·75; culmen, ·56–·55; tarsus, 1·36–1·62; middle toe, 1·25–1·35. *Hab.* Northwest coast of N. Am., from Oregon to Sitka. (Types, No. 4,477. *Male*, Shoalwater Bay, W. T., and 5,832, *female* Fort Steilacoom. Based on series of six specimens.)

REMARKS.—This form represents the northwest coast region of heavy rains and dense forests, along with the black Peregrine (*F. communis*, var. *Pealei*) the *Bubo Virginianus*, var. *Pacificus*, *Scops asio*, var. *Kennicottii*, *Bonasa umbellus*, var. *Sabinei*, *Canace obscura*, var. *fuliginosa*, etc. The light-colored form of the interior is probably the *Falco Richardsonii* Ridgway (P. A. N. S., 1870, p. 145), which I am now disposed to refer to the same stock as *F. aesalon* and *F. Columbarius*. The latter two are certainly but geographical races of one species.

## REGULAR MEETING, MONDAY, DEC. 1, 1873.

Meeting this evening at 7.30 o'clock. The PRESIDENT in the chair. Records read.

The SECRETARY announced the following correspondence :—

From Samuel L. Boardman, Augusta, Me., Nov. 18, 24, 28; E. W. Buswell, Boston, Nov. 19; C. H. Dall, Boston, Nov. 23; A. W. Dodge, Nov. 18; J. P. Franks, Nov. 20; George L. Gleason, Manchester, Nov. 5; Colman Harris, Nov. 14; C. H. Higbee, Boston, Nov. 24; Thomas Morong, Ipswich, Nov. 26; John Murdock, Cambridge, Nov. 24; A. V. Osborn, Waterville, N. Y., Nov. 25; C. A. Torrey, Boston, Nov. 15; U. S. Dep't of Agriculture, Washington, Nov. 17, 26. Vermont State Library, Nov. 18.

THE LIBRARIAN reported the following additions :—

*By Donation.*

BUSWELL, E. W., of Boston. Miscellaneous pamphlets, 116.  
 DEPARTMENT OF AGRICULTURE OF ILLINOIS. Transactions of, for 1872.  
 MERRILL, CHAS. E., of New York. The Analytical Speller, by Edwards and Warren. 1 vol. 16mo. Miscellaneous Guide Books, 15.  
 MORSE, E. S. Embryology of Terebratulina, by donor. 4to pamph. 1873.  
 OSGOOD, C. S. Rules and Regulations of the School Committee of Salem, 1873. 1 vol. 8vo.  
 PEYTON, JOHN LEWIS, of Jersey, Channel Island, England. Memoir of Wm. Madison Peyton, of Roanoke, by donor. 1 vol. 8vo. London, 1873.  
 PUTNAM, F. W. The Politician's Register, by Benjamin Matthias. 1 vol. 12mo.  
 QUINT, A. H., of New Bedford, Mass. Minutes of the General Association of Mass. for 1873.  
 U. S. BUREAU OF EDUCATION. Circulars of Informations. No. 4, 1873.  
 U. S. PATENT OFFICE. Official Gazette, Oct. 21, 28, Nov. 4, 11. 1873.  
 WATERS, E. S. Miscellaneous pamphlets, 20.  
 WHEATLAND, S. G. Cornhill Magazine, 25 nos. Miscellaneous pamphlets, 41.  
 WILLSON, E. B. The Christian Freeman and Record of Unitarian Worthies, Oct., Nov., 1873.  
 WORTHEN, A. H., of Springfield, Ill. Geological Survey of Illinois. Vol. v. Geology and Paleontology, 1 vol. 4to. 1873.

*By Exchange.*

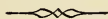
ARCHIV DER ANTHROPOLOGIE IN BRAUNSCHWEIG. Band vi, Heft 1, 1873.  
 BOWDOIN COLLEGE. Catalogue of the Officers and Students of Bowdoin College and the Medical School of Maine for 1873-4.  
 BUFFALO SOCIETY OF NATURAL SCIENCES. Bulletin of the, Vol. i, No. 3, 1873.

- KÖNIGLICHE PHYSIKALISCH-ÖKONOMISCHE GESELLSCHAFT IN KÖNIGSBERG. Schriften, Jahrg. xiii, 1872.
- NATURFORSCHENDEN GESELLSCHAFT IN BASEL. Verhandlungen, Fünfter Theil. Viertes Heft, 1873.
- NATURFORSCHENDE GESELLSCHAFT IN BERN. Mittheilungen, Nos. 792-811, 1872.
- PHILADELPHIA ACADEMY OF NATURAL SCIENCES. Proceedings of, Part ii. Mech.-Sept. 1873. 8vo pamph.
- ROYAL SOCIETY OF LONDON. Proceedings of, Nos. 138-145. 8 pamphlets. 8vo.
- SOCIÉTÉ DE PHYSIQUE ET D' HISTOIRE NATURELLE IN GENÈVE. Mémoires, tome xxii, 1873.
- ST. GALLISCHE GESELLSCHAFT OF ST. GALLEN. Bericht, Vereinsjahres, 1871-2.
- SOCIÉTÉ VAUDOISE DES SCIENCES NATURELLES IN LAUSANNE. Bulletin, 2e Série, vol. xii, no. 69, 1873.
- VERMONT HISTORICAL SOCIETY. Records of the Council of Safety and Governor and Council of the State of Vermont and Records of the General Conventions from July, 1775-Dec., 1777. Vol. i. 1 vol. 8vo. Montpelier, 1873. Fourth Annual Report of the Transactions of the Vermont Dairymen's Association, 1872-1873.
- YALE COLLEGE. Catalogue of the Officers and Students of, for 1873-74.
- ZOOLOGISCHE GESELLSCHAFT OF FRANKFURT. Zoologische Garten, Jan.-Jun., 1873. 6 pamphlets. 8vo.
- PUBLISHERS. Forest and Stream. Gardener's Monthly. Gloucester Telegraph. Haverhill Gazette. Ipswich Chronicle. Lawrence American. Lynn Reporter. Lynn Transcript. Medical and Surgical Reporter. Nation. Peabody Press. Salem City Post. Salem Observer. Silliman's Journal.

The PRESIDENT mentioned the recent decease of an old and highly esteemed member of the Institute, Hon. Benjamin F. Browne, of Salem, and suggested the appointment of a committee to take such notice of this event as may be deemed most appropriate; the preparation of a memoir for insertion in the publications, or otherwise, which was adopted.

The President, Messrs. A. C. Goodell, Jr., R. S. Rantoul, James Kimball and W. P. Upham were appointed on said committee.

Adjourned.



REGULAR MEETING, MONDAY, DEC. 15, 1863.

Meeting this evening at 7.30 o'clock. The PRESIDENT in the chair. Records of preceding meeting read.



President WHEATLAND stated that the sad information which we had so recently received rendered it appropriate for the Institute to take some action in regard to the loss which it had sustained in the death of one of its most esteemed corresponding members, Professor LOUIS AGASSIZ, and after making a few interesting remarks, alluding to his own acquaintance with Prof. Agassiz, and the influence he exerted in the promotion of scientific research in this country, called on Dr. A. S. PACKARD, Jr., who submitted the following resolutions:—

WHEREAS, our corresponding member, Professor LOUIS AGASSIZ, has been suddenly taken from us, while in the ripeness of his years,

*Resolved*, That in his death our society has lost a valued and most distinguished member, who, from an early period in its history, took a deep interest in its progress.

*Resolved*, That American science has met with an irreparable loss in the death of one who, by his genius for original research, his organizing ability, his eloquence, conspicuous enthusiasm and untiring industry, has done more than any one else to elevate, dignify and advance science in our country, and kindle a zeal for the study of nature in the western world which will be felt for generations to come.

*Resolved*, That in bringing to this country, the land of his adoption, new modes of research, he has here inaugurated an original method of teaching science, which will have the happiest influence in raising up original investigators and elevating the standard of education in our colleges and common schools.

*Resolved*, That in his death Science, from his large and comprehensive way of looking at Nature, has lost one of its most gifted followers; Letters, a most graceful and persuasive writer, and Humanity, in his lifelong devotion to all that tends to elevate the race, one of its best types.

In these resolutions, Mr. President, continued Dr. Packard, I cannot express the sense of personal bereavement that I feel in the loss of a beloved teacher and most estimable man. In the death of one who was so outspoken in behalf of the claims of science, the younger naturalists of America have lost a staunch and fearless friend. More than any one else, Professor Agassiz, in season and out of season, urged the teaching of science in schools of all grades. He placed the methods of teaching natural history on a more natural basis, and to him we owe very largely the introduction of science-teaching into our schools and colleges. The example he has left us of untiring industry, of devotion to truth, and of loyalty to sound learning, is one we would perpetuate. His sympathy in the objects of our society was often expressed. His death is a loss to our commonwealth and our country, and in science to whom shall we look to fill the peculiar place he held?

Vice President F. W. PUTNAM seconded the resolutions, speaking substantially as follows:—

In me, Mr. President, these resolutions call up the deepest feelings. Well do I remember the first meeting I had with Prof. Agassiz, when in 1856 he visited the old rooms of the Institute for the purpose of examining the collection of turtles, as he was then engaged on his work on the Testudinata of North America. I shall never forget the pleasure which I experienced when showing our collection to the great naturalist, especially as that meeting was the occasion of my being so intimately associated with him for years afterwards. I should be recreant to my duty on this occasion did I not here publicly acknowledge my great indebtedness to my old master for the uniform kindness received from him and the valu-

able training which has enabled me to pursue my studies with the proper feeling of responsibility which every true naturalist must experience.

The teachings of Agassiz were thorough. His object was to prepare students for reliable work in the future, and his constant restraint upon them, preventing their publishing crude ideas, has been the cause of much misunderstanding regarding his method of teaching; but those who have passed through the drill never regret its enforcement.

The death of Agassiz is indeed a loss to American science; for to whom can we look as his successor in the minds of the people? It may be that his official positions can be readily filled; but who is there that will occupy, or is capable of occupying, the position which Agassiz has held in his relations to the science of the whole country?

It was his peculiar sphere to make science not only popular but respected as well, and it is to his great labors and peculiar adaptability for the work that we owe, more than to all other causes combined, the immense advances made in Natural Sciences in America during the last quarter of a century. But few men have done so much, or have had such power in influencing others in the cause of science as Agassiz. His name has been a household word, his fame and his kindness to all who loved science have brought students to him from all parts of the country, and his disinterestedness in his great work, combined with the enthusiasm with which he pursued it, has opened the purses of the rich and the treasury of the State to an extent unequalled in the annals of science. To wish, with him, has of late years been almost synonymous with to have; and well did he earn the right for it to be so. Working for the future of science in this country more than for his own immediate and personal

ends, he has been met by generous men who, appreciating his objects, have given him their support, and it is only by those who have not understood, or could not understand his great aims that he has been assailed. Yes, Mr. President, in moving the acceptance of the resolutions, proposed by one who also feels the obligation which all students of Agassiz must feel for the thoroughness of their training, I must express again that our loss is more than would ordinarily be the case, as our society had many ties uniting us with Agassiz. We can count six of our present or past active officers who have been brought up under his guidance, and his principles have thus become engrafted in our Institution, while the active interest he has always taken in our labors and the cordial aid that he has been ever ready to give our society, make his loss to us great and heartfelt. Personally I feel that a blank exists which words of mine cannot describe. Let us hope that the spirit with which our great master was imbued will inspire us with like enthusiasm for the fulfilment of our labors.

As a fitting tribute to the memory of Agassiz, and an acknowledgment of the indebtedness of the Institute for the aid and example he has given it, I propose that in addition to placing the resolutions which have been offered on our records, the Institute also place over the alcove containing our most important works in Natural History, the name of AGASSIZ.

Mr. Putnam was followed by Prof. E. S. MORSE, who was also once a pupil of Agassiz, Rev. E. S. ATWOOD, Rev. J. COIT, A. C. GOODELL, Jr., Esq., Hon. JAMES KIMBALL, and others, all of whom expressed their appreciation of the distinguished naturalist, and their sadness at his removal from the scenes of earth.

The resolutions were then unanimously adopted, ordered to be entered upon the records of the Institute, and the Secretary was instructed to forward a copy of them to the family of the deceased.



#### SPECIAL MEETING, TUESDAY, DEC. 16, 1873.

A SPECIAL meeting was held this evening to celebrate the centennial anniversary of the destruction of the tea in Boston harbor, Dec. 16, 1773.

Before proceeding to the special object of the meeting, the following persons, nominated at a previous meeting, were duly elected resident members :—

John M. Bradbury of Ipswich, and Augustus D. Small, Joseph P. Fessenden, Oliver Carlton, George D. Putnam, Mrs. Francis Cox, George M. White, Caroline C. West, Ella Worcester, Sarah E. Smith, Alice Browne, J. Warren Thyng, Walter A. Hanson, Annie A. Agge, M. H. Richardson, Thomas B. Thayer, T. Lyman Perkins, Lizzie H. Hanson, John G. White, Henry W. Perkins, Mrs. George D. Putnam, of Salem.

President WHEATLAND opened the exercises by reading from the "Essex Gazette," of the ante-revolutionary period, a contemporary account of the destruction of the tea, and also from an original document of 1770, with the autographs of citizens of Rowley, protesting against the tax and binding themselves not to use tea nor have any dealings with the importers thereof until the obnoxious act was repealed.

Hon. JAMES KIMBALL followed with an admirable paper, carefully prepared, and presenting much historical infor-



mation of a very interesting character, derived largely from original sources. He gave a brief but comprehensive review of the causes which led to the transaction commemorated, with graphic details of the proceedings and personal sketches of some of the actors. Among these was Mr. Kimball's grandfather, William Russell, the father of our well remembered citizen, Col. John Russell, and the grandfather of Prof. John Lewis Russell, recently deceased. William was very active among the Sons of Liberty and participated in the destruction of the tea. He was intimate with Edes & Gill, the printers of the Boston Gazette, and with the leading patriots, and wrote patriotic articles for the paper. He was a teacher on the site of the Mayhew school, which is probably the legitimate successor of that taught by Russell. He was a participant in the revolutionary struggle, and was an inmate of the notorious Mill Prison and the Jersey Prison Ship, where he suffered many privations and contracted the disease which occasioned his death not long after the declaration of peace. While a prisoner he wrote the following lines, which were read as illustrative of the feelings engendered by the events of the times:—

[crew!

Great Mars, with me, come now and view, this more than Hellish  
Great Vulcan, send your thunder forth, and all their fields bestrew;  
Rain on their heads perpetual fire, in one eternal flame;  
Let black destruction be their doom, dishonored be their name;  
Send mighty bolts to strike the traitors North and Mansfield dead,  
And liquid fire to scald the Crown from Royal George's head;  
Strike all their young posterity with one Eternal curse,  
Nor pity them, no more than they have ever pitied us.

Mill Prison (Plymouth), England, Nov. 29th, 3 P. M., 1781.

WILLIAM RUSSELL.

When this was written Mr. Russell had been confined in prison nearly two years, on a charge of piracy, treason,

and rebellion, being taken prisoner on board the American Privateer Jason of Boston, John Manly, Esq., Commander.

The details presented by Mr. Kimball were listened to with close attention and profound interest. He exhibited a small portrait of the patriot in the costume of the period, and a tin tea caddy belonging to him, on which he had painted, after the disuse of tea, the inscriptions "COFFEE,"—"NO TEA," which are still visible. Mr. Kimball also exhibited several books and manuscripts of historic interest, among which were a writing book with the patriotic mottoes of Mr. Russell's day, and the orderly book of the Artillery company in service in or near Boston during the revolution. These relics were examined with much curiosity.

Vice President A. C. GOODELL, Jr., next made some remarks, and urged the Institute not to forget to observe, next year, the anniversary of the most important event of the ante-revolutionary period—which was really the initial act of the actual severance of our connection with the British crown—viz.: the proceedings which took place in our Court House here in Salem, in Oct., 1774, when the Great and General Court resolved itself into a PROVINCIAL CONGRESS.

Mr. Goodell exhibited a specimen of the veritable tea which caused the outbreak celebrated, and an antique teapot formerly in use in the Warner family of Ipswich (from which came our Salem Warners, esteemed citizens in past years), dating back to 1720. The tea was received from Mrs. Jonathan Perley, in whose family it was an heirloom, having come directly from Ezekiel Cheever of Saugus, one of the "Mohawks," who wore high-top boots at the time, and whose wife, on his return home, collected

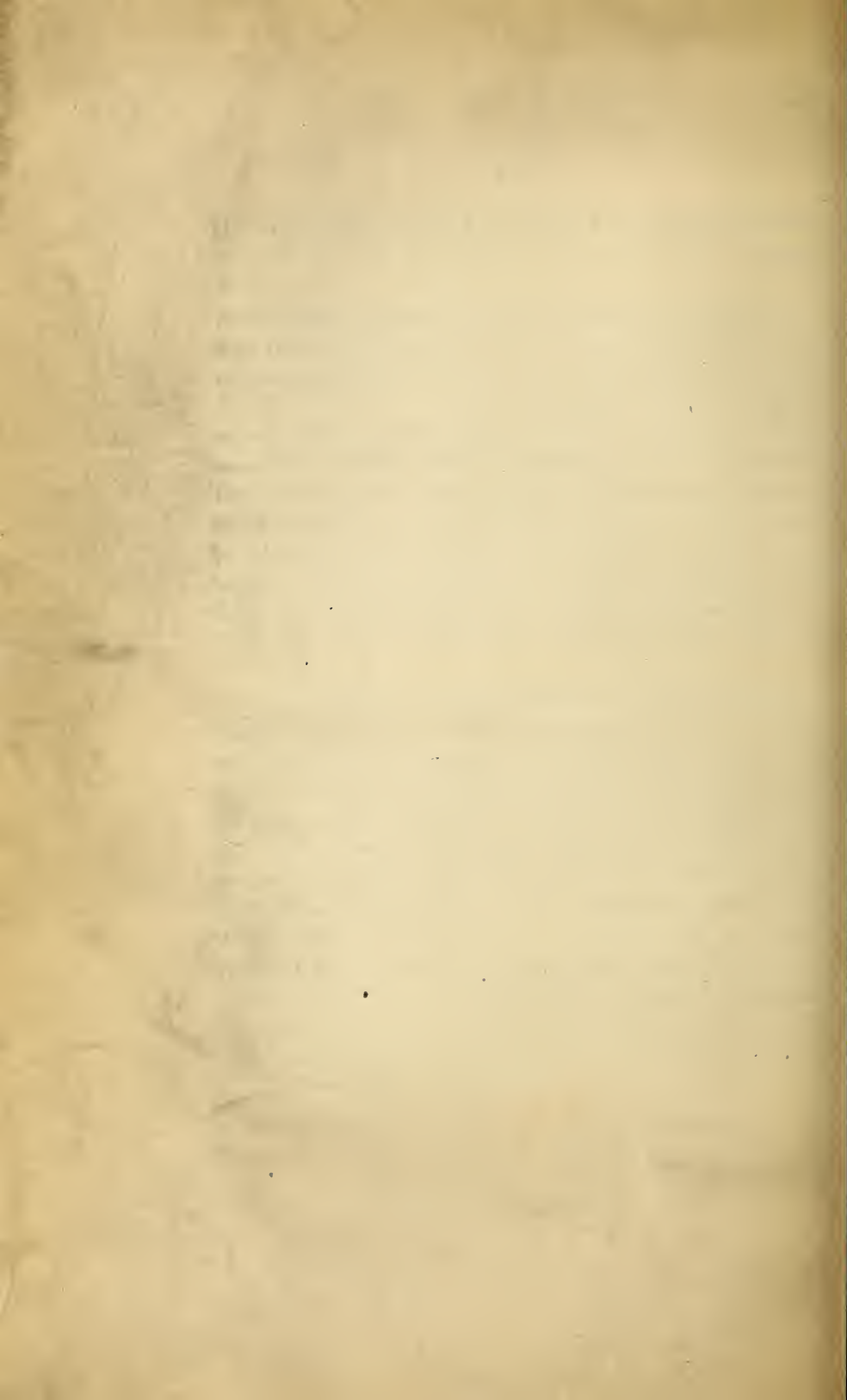
and preserved the tea which had lodged in the tops of his boots.

J. WINGATE THORNTON, Esq., of Boston, followed Mr. Goodell, and gave forcible reasons why Salem should take a particular interest in this celebration and the principles it illustrated and enforced.

He referred pertinently to Hugh Peters and Sir George Downing, former residents of Salem, and their influence on Cromwell and the Commonwealth of England, and reminded the audience that Downing, a graduate of the first class of Harvard College, lived on the site of Plummer Hall, and he had probably fitted for college, and his youthful voice often resounded, within hearing of the place where they were assembled.

The meeting then adjourned, and the company were invited to one of the ante-rooms, where refreshing draughts of tea were dispensed, two or three kinds of the fragrant herb having been generously furnished for the occasion by the Oriental Tea Company. Copies of a paper entitled the "Tea-cup," containing a graphic account of the destruction of the tea and its attendant circumstances, by the learned antiquarian, Dr. N. B. Shurtleff, of Boston, were also distributed.

The celebration was a success and gave great pleasure to those who participated in it.



BULLETIN

OF THE

ESSEX INSTITUTE,

VOLUME VI.

1874.

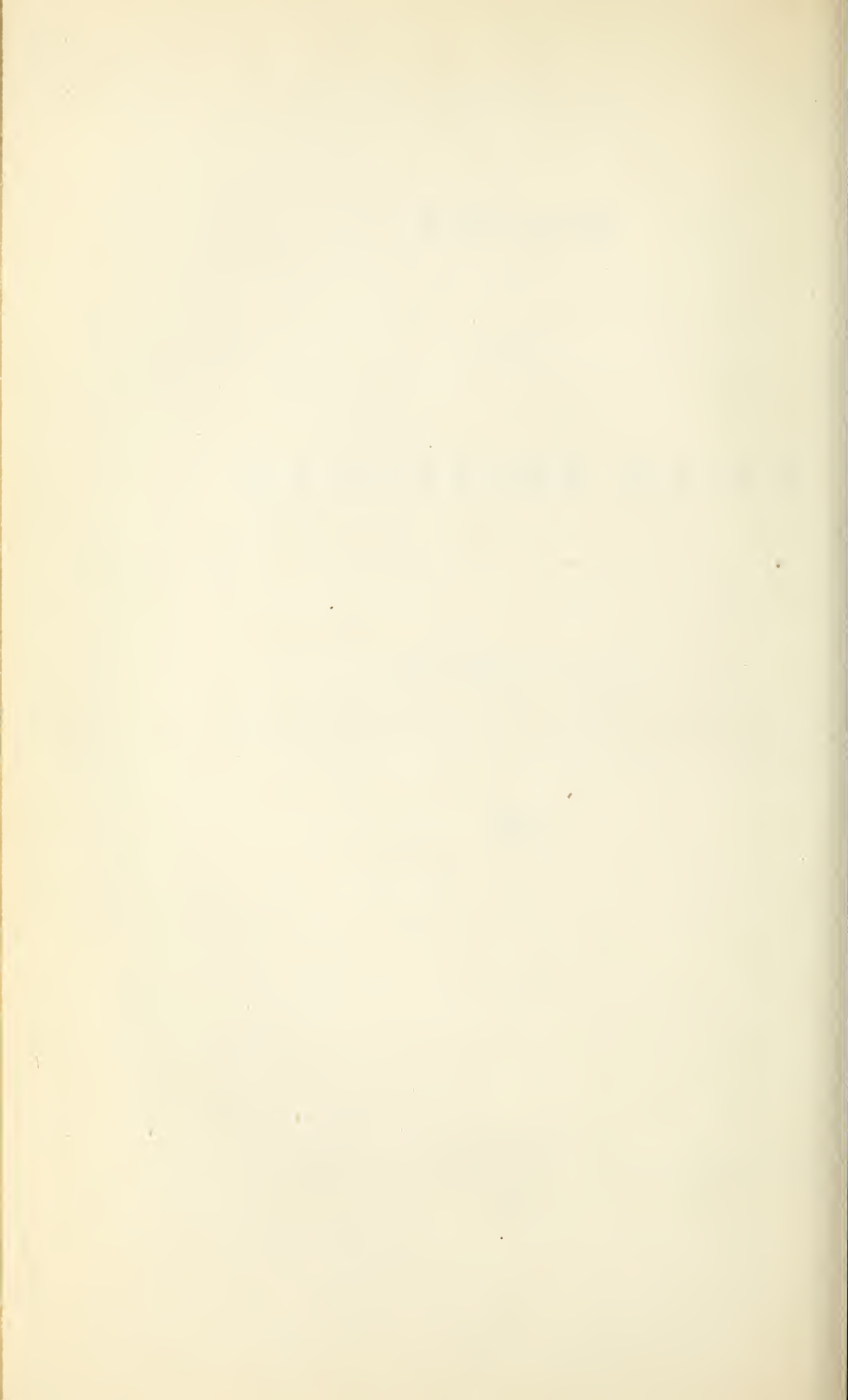
---

SALEM, MASS.

PRINTED AT THE SALEM PRESS.

1875.





## CONTENTS.

---

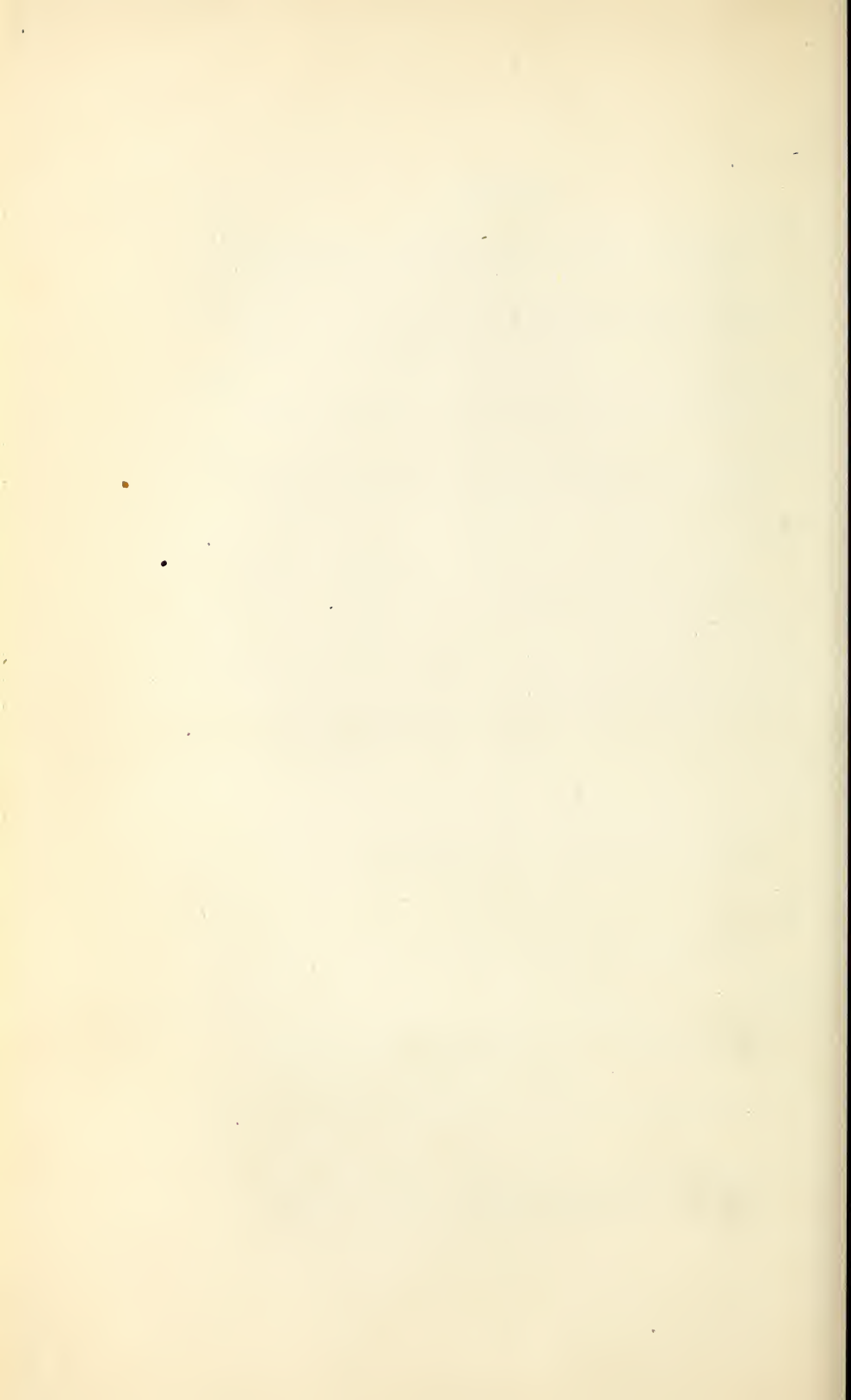
Regular Meeting, Monday, January 5, 1874, . . . . .	1
Adjourned Meeting, Thursday, January 8, 1874, . . . . .	1
Byron Groce, Natural History in the Schools, 3.—F. W. Putnam, Remarks on the same subject, 8.—J. Robinson, Donation of a Collection of Presidential Medals, and Remarks on them, 10.	
Regular Meeting, Monday, January 19, 1874, . . . . .	10
F. W. Putnam, Rare Fishes taken in Salem. Beverly and Marblehead Harbors ( <i>Cryptacanthodes inornatus</i> , <i>Liparis lineatus</i> and <i>Platessa glabra</i> ), 11.—A. Peabody, On the Early Days of California, 13.—F. W. Putnam, Remarks on the same subject, 17.—J. Robinson, On the Condition and Extent of the Collection of Continental Paper Currency in the Rooms of the Institute, 19.	
Regular Meeting, Monday, February 2, 1874, . . . . .	20
J. Robinson, On Donation of Paper Money from W. S. Vaux, of Philadelphia, 21.—F. W. Putnam, On Black Fish taken in Salem Harbor, 22.	
Quarterly Meeting, Wednesday, February 11, 1874, . . . . .	25
Regular Meeting, Monday, February 16, 1874, . . . . .	25
Charles Kingsley's Lecture on Westminster Abbey noticed, 25.—His Reception at the Rooms of the Institute, Addresses by the President, Mayor Cogswell, Mr. Kingsley, and others, 26.	
Adjourned Meeting, Friday, February 27, 1874, . . . . .	30
Walter Smith's Communication on Art Studies, 31.—Remarks on the subject by the President, Messrs. Putnam and Hagar, 32.	
Regular Meeting, Monday, March 2, 1874, . . . . .	33
James Kimball, Notes from the Diary of William Russell, prior and chiefly during the Time of his Imprisonment in Mill Prison, England, during the Revolutionary War, 35.	
Regular Meeting, Monday, March 16, 1874, . . . . .	36
G. M. White, On Copper-plate Engraving, 37.—James Kimball's Communication on the Journal of the Rev. D. Shute in 1758, 43.—Agassiz Memorial Fund noticed, 43.—J. A. Allen, Notes on the Mammals of Portions of Kansas, Colorado, Wyoming and Utah, 43.	
Regular Meeting, Monday, April 6, 1874, . . . . .	67
Regular Meeting, Monday, April 20, 1874, . . . . .	67
E. S. Morse, On the Various Modes of Illustration, 69.—F. W. Putnam, Notice of a Skull from Shell-bed on Rock Island, 70.—F. W. Putnam, On Teeth of a Large Shark, probably <i>Carcharis (Prionodon) lucia</i> , from near St. Peter's Bank, 76.—Notice of the Late Alpheus Crosby, and Resolutions adopted, 73.	
Regular Meeting, Monday, May 4, 1874, . . . . .	75
E. A. Silsbee, Familiar Talk on Art Matters, 77.	
Annual Meeting, Wednesday, May 13, 1874, . . . . .	86
Retrospect of the Year, Members, 86; Meetings, 89; Lectures and Concerts, 92; Horticultural, 94; Library, 96; Museum, 97; Financial, 98; Publications, 99; Officers elected, 100.	

Regular Meeting, Monday, May 18, 1874, . . . . .	102
Charles C. Perkins, Talk upon Art, 102.	
Field Meeting at Ipswich, Wednesday, June 2, 1874, . . . . .	105
Ramble and Notice, 102.—E. S. Morse, On the Fertilization of Flowers, 109.—F. W. Putnam, On the Shell Heaps at Eagle Hill; also an account of the <i>Chaulioides Sloani</i> , from George's Banks, 111.—T. Morong, An Historical Account of the Public Library, 112.	
Regular Meeting, Monday, June 15, 1874, . . . . .	115
A Committee appointed to report on the Propriety of Taking Suitable Notice of the Centennial Anniversary of the Meeting of the Legislature in Salem, Oct. 7, 1774, 115.	
Field Meeting at Topsfield, Thursday, June 18, 1874, . . . . .	116
Ramble and Historical Notices, 116.—Opening Remarks by the President, 119; J. H. Fitts, Account of Thomas Almanacs, 119; Remarks by N. A. Horton, J. Spofford, S. Todd, F. W. Putnam, B. P. Adams, Charles J. Peabody and others, 120.	
Adjourned Meeting, Friday, June 19, 1874, . . . . .	122
Regular Meeting, Monday, July 6, 1874, . . . . .	123
Committee on the Centennial Anniversary report favorably to the Observance of this Anniversary by an Historical Address, and A. C. Goodell, Jr., Esq., was invited to deliver the Address, 123.—W. H. Dall, Notes on an Examination of Four Species of Chitons, 124.	
Field Meeting at West Newbury, Thursday, July 16, 1874, . . . . .	125
The Ramble and Historical Sketches, 125; Opening Remarks by the President, 134; G. D. Phippen, on Plants Collected, and especially on "Weeds," 135.—Remarks by John Robinson, D. B. Hagar, Abner G. Phipps, J. Spofford, Hayden Brown, S. M. Allen, W. H. H. Marsh and others, 135.	
Regular Meeting, Monday, August 3, 1874, . . . . .	138
Field Meeting at Rockport, Thursday, August 6, 1874, . . . . .	139
The Ramble, 138.—A. Osgood, Notes on the Lead Mine at Rocky Hill, West Newbury, 142.—F. W. Putnam, Notice of the Anderson School of Natural History, 143; Remarks by A. W. Dodge, A. H. Tuttle, A. B. Hervey, 144.—J. B. Wardwell, Description of an Indian Relic, 145.	
Regular Meeting, Monday, August 17, 1874, . . . . .	147
Regular Meeting, Monday, September 7, 1874, . . . . .	148
E. C. Bolles, Notice of Some Relics collected at Chester, England, 150. Notice, and Resolutions on the Decease, of J. Wyman, 152.	
Regular Meeting, Monday, September 21, 1874, . . . . .	153
Field Meeting at Manchester, Friday, Oct. 2, 1874, . . . . .	155
The Ramble, 155.—E. S. Morse, Remarks on Glaciers, 157; John Robinson, Account of the Agassiz Boulder, 158.—E. C. Bolles, On the Change of Color in Leaves in Autumn, 159.	
Regular Meeting, Monday, October 5, 1874, . . . . .	160
Commemoration 1st Centennial of the Revolution, 160.—Ode adapted to the Occasion, 161; A. C. Goodell, Jr., Address, 162.	
Regular Meeting, Monday, October 19, 1874, . . . . .	165
E. S. Morse, On the Theory of Evolution, 167; E. C. Bolles, Account of the Various Scientific Institutions of London, 168; R. Ridgway, Lists of Birds observed from Sacramento to Salt Lake City, at Various Localities Contiguous to Central Pacific Railroad, 169.	

# CONTENTS.

v

Regular Meeting, Monday, November 2, 1874,	175
J. Kimball, Notice of Petition for the Preservation of Fish in Streams and Ponds in 1728, 176.—E. S. Morse, On the Habits of Trap Door Spiders, 179.	
Regular Meeting, Monday, November 16, 1874,	180
Remarks on the Indian Skeletons found at Marblehead, by A. C. Goodell, Jr., 182; W. P. Upham, 183; E. S. Atwood, 184; Caleb Cooke, 185; E. S. Morse, 187, A. H. Johnson, 188; E. C. Bolles, 189.	
Special Meeting, Wednesday, November 25, 1874,	190
Notice of James Steele Mackaye's Lecture on F. Delsarte, 190.—F. W. Putnam, Remarks on a Collection of Living Specimens of Fishes and Crayfishes from Mammoth Cave, 191.	
Regular Meeting, Monday, December 7, 1874,	200
H. K. Oliver, On a Recent Donation from the Heirs of Gen. B. F. Edwards, 202; J. Robinson, Familiar Talk on the Manufacture of Glass, 203.—H. K. Oliver, Remarks on the Transit of Venus, 203.	
Regular Meeting, Monday, December 21, 1874,	203
F. W. Putnam, Notice of Some Important Discoveries of the Hayden Exploring Expedition, 204.—A. Osgood and Mr. Knowlton, Remarks on the Lead Ore of West Newbury, 205.—F. W. Putnam and G. B. Loring, In Relation to the Proposed State Survey, 205.	
Letters Announced, 1, 10, 20, 33, 36, 67, 75, 107, 117, 131, 140, 148, 153, 166, 175, 180, 200, 203.	
Additions to the Library, 2, 11, 20, 33, 36, 68, 75, 107, 118, 132, 141, 148, 153, 166, 175, 181, 201, 204.	
Additions to Museum, 10, 146, 148, 150, 151, 154, 180, 181.	





# BULLETIN

OF THE

## ESSEX INSTITUTE.

---

---

VOL. 6.                      SALEM, MASS., JAN., 1874.                      No. 1.

One Dollar a Year in Advance. 10 Cents a Single Copy.

---

---

REGULAR MEETING, MONDAY, JAN. 5, 1874.

MEETING this evening at 7.30 o'clock. Adjourned to Thursday, the 8th.



ADJOURNED MEETING, THURSDAY, JAN. 8, 1874.

MEETING this evening at 7.30 o'clock, adjourned from Monday, the 5th. The PRESIDENT in the chair. Records read.

The SECRETARY announced the following correspondence:—

From John J. Babson, Gloucester, Dec. 8; Samuel A. Drake, Boston, Dec. 4; G. L. Gleason, Manchester, Dec. 23; J. L. Hawley, Brooklyn, N. Y., Dec. 1; Frank E. Hotchkiss, New Haven, Dec. 4; J. F. LeBaron, Lynn, Dec. 1, 13; H. M. Meek, Dec. 2; J. L. Robinson, Wenham, Dec. 1, 8; A. C. Goodell, Jr., Dec. 9; Sampson, Davenport & Co., Boston, Dec. 5; Wisconsin State Historical Society, Dec. 2; John M. Bradbury, Ipswich, Dec. 20, 26; Oliver Carlton, Dec. 18; George W. Clark, Newburyport, Dec. 25; N. Cleaveland, Westport, Conn., Dec. 18, 29; Henry Dexter,

Cambridge, Dec. 18; Joseph P. Fessenden, Dec. 22; Lucian H. Frary, Middleton, Dec. 20; Byron Groce, Peabody, Dec. 28; P. A. Hanaford, New Haven, Conn., Dec. 19; J. C. Holmes, Detroit, Mich., Dec. 20; A. H. Hoyt, Boston, Dec. 9; J. L. LeBaron, Charlestown, Dec. 17; Marshall Pierce, Saco, Maine, Dec. 20; Sampson, Davenport & Co., Boston, Dec. 31; Augustus D. Small, Dec. 19; J. Wingate Thornton, Boston, Dec. 17; B. Westermann & Co., New York, Dec. 12, 31; Charles K. Whipple, Boston, Dec. 19; William C. Wood, Wenham, Jan. 1; Ashbel Woodward, Franklin, Conn., Dec. 19; Buffalo Historical Society, Dec. 18; Cincinnati Public Library, Dec. 24; Davenport Academy of Natural Science, Dec. 27; New England Historic-Genealogical Society, Dec. 17; New York Historical Society, Dec. 17; New York Lyceum of Natural History, Dec. 22; Ohio Historical and Philosophical Society, Dec. 19, 20; Rhode Island Historical Society, Dec. 19.

## The LIBRARIAN reported the following additions:—

### *By Donation.*

ADAMS, C. F., of Boston. Address on the Life, Character and Services of Wm. H. Seward, delivered at Albany, Apr. 18, 1873, by donor.

ALMY, JAMES F. Salem Journal of Fashion for Sept., Oct., Nov., Dec., 1873.

APPLETON, W. S., of Boston. Description of Medals of Washington in the collection of the donor. Boston, 1873.

BARKER, JOHN G., of Lynn. Transactions of the New York State Agricultural Society for 1843-1862 inclusive. 20 vols. 8vo. Catalogue of the New York State Cabinet. 1 vol. 8vo.

BRIGHAM, WM., of Boston. Miscellaneous pamphlets, 10.

BUTLER, B. F., of U. S. House of Reps. Report of the Commissioners of the Sutro Tunnel, 1872. 1 vol. 8vo.

HOTCHKISS, F. E., of New Haven, Conn. Report of the Board of Education of Conn. for 1872, 1873. 2 vols. 8vo. New Haven City Year Book for 1871-72, 1872-73. 2 vols. 8vo.

HUMPHREYS, Brig. Gen. A. A., of Washington, D. C. Professional Papers of the Corps of Engineers of U. S. Army, No. 12. 1 vol. 8vo. Washington, 1873. Report of the Chief of Engineers for 1873. 1 vol. 8vo. Washington, 1873.

LEE, JOHN C. Commercial Bulletin for Aug. 23, 30, Sept. 3, Nov. 22, 29, Dec. 6, 13, 20, 27, 1873.

ROBINSON, JOHN. American Naturalist, 18 numbers. The Agriculturist, 23 nos. Miscellaneous pamphlets, 75.

SAMPSON, DAVENPORT & Co., of Boston. Lynn Directory, 1873. 1 vol. 8vo. Providence and Rhode Island Business Directory and Register, 1873. 1 vol. 8vo. Albany Directory, 1873. 1 vol. 8vo. Manchester Directory, 1873. 1 vol. 8vo. Lawrence Directory, 1873. 1 vol. 8vo. Salem Directory, 1872. 1 vol. 8vo. Fall River Directory, 1872-3. 1 vol. 8vo. Taunton Directory, 1872. 1 vol. 8vo. Charlestown Directory, 1874. 1 vol. 8vo. Gloucester and Rockport Directory, 1873. 1 vol. 8vo. Newburyport, Amesbury and Salisbury Directory, 1873. 1 vol. 8vo. Boston Directories, 1872, 1873. 2 vols. 8vo. Troy, West Troy and Cohoes Directory, 1873. 1 vol. 8vo.

STONE, HENRY R. Vocabulario De La Lengua Tagala. 1 vol. 8vo. 1835.

U. S. PATENT OFFICE. Official Gazette, Nov. 18, 25, Dec. 9, 16, 1873.

VERRILL, A. E., of New Haven, Conn. Eighth Annual Report of the Sheffield Scientific School of Yale College, 1872-3.

WATERS, HENRY F. Miscellaneous pamphlets, 35.

*By Exchange.*

BIBLIOTHEQUE UNIVERSELLE ET REVUE SUISSE. Archives des Sciences physiques et naturelles, Sept., Oct., Nov., 1873.

CANADIAN INSTITUTE. The Canadian Journal of Science, Literature and History. Vol. xiv. Nov., 1873.

CONN. ACADEMY OF ARTS AND SCIENCES. Transactions of. Vol. ii, Pt. II, 1873.

HISTORICAL AND PHILOSOPHICAL SOCIETY OF OHIO. Col. May's Journey to the Ohio Co., 1788-89. 1 vol. 8vo. Cincinnati, 1873. Geological Survey of Ohio for 1869, 1870, 1873. 4 vols. 8vo. Maps for 1873.

LITERARY AND HISTORICAL SOCIETY OF QUEBEC. Transactions of the. Session of 1872-3.

NEW JERSEY HISTORICAL SOCIETY. Proceedings of the. 2d Series. Vol. iii, No. 3, 1873.

PEABODY INSTITUTE OF PEABODY. Twenty-first Annual Report of the Trustees of the Peabody Institute, 1873.

WISCONSIN STATE HISTORICAL SOCIETY. Private and Local Laws of Wisconsin, 1867, 1868, 1870, 1871, 1872. 6 vols. 8vo. Senate Journal of Wisconsin, 1867, 1868, 1869, 1870, 1871, 1872, 1873. 7 vols. 8vo. Governor's Message and Accompanying Documents of Wisconsin, 1866, 1867, 1869, 1870, 1871, 1872. 11 vols. 8vo. Assembly Journal of Wisconsin, 1867, 1868, 1869, 1870, 1871, 1873. 6 vols. 8vo. Transactions of the Wisconsin State Agricultural Society, 1861-8, 1869, 1870, 1871, 1872-3. 5 vols. 8vo. First Annual Report of the State Board of Charities and Reform of Wisconsin, 1871. 1 vol. 8vo. Laws of Wisconsin, 1867, 1868, 1869, 1870, 1871, 1872, 1873. 7 vols. 8vo. Catalogue of the Wisconsin State Library, 1872. 1 vol. 8vo.

PUBLISHERS. Bossange's Catalogue. Forest and Stream. Gardener's Monthly. Gloucester Telegraph. Hardwick's Science Gossip. Haverhill Gazette. Ipswich Chronicle. Lawrence American. Lynn Reporter. Lynn Transcript. Medical and Surgical Reporter. Nation. Nature. Peabody Press. Salem City Post. Salem Observer.

David Coggin, of Salem, was elected a resident member.

Mr. BYRON GROCE, master of Peabody High School, Peabody, Mass., read a communication. An abstract is here annexed.

## NATURAL HISTORY IN THE SCHOOLS.

THE speaker stated his purpose to be to speak of the state of things regarding natural history in the schools as it is at present, to tell what he thought it ought to be, and to give some brief suggestions as to how the desired end might be brought about.

The present may be described by the brief but fair statement that there is no natural history in our schools, for, while it is true that botany has a place in the printed programme of most of our high

schools, and is accompanied by mineralogy in others, two considerations make this fact consistent with the original statement. First, the number of pupils in high schools, as compared with the number in the lower grades, is extremely small. Second, even in high schools, the method of study is such as to indicate the light esteem in which it is held; and the few good results from the study are not seldom quoted to the discredit of the study itself. As an illustration of "how not to do it," the method of teaching in a college, with which the speaker was familiar, was cited.

A genial, well-informed gentleman of mature years and fine culture occupies the position of instructor in the department of natural science in this well endowed, vigorous and flourishing New England college. During the fifteen or twenty weeks given to botany, with three or four recitations weekly, in one year less than half a dozen plants were examined by the pupils, in the class-room, and, worse than this, the time was spent instead, in committing to memory, *verbatim et literatim*, the glossary of technical terms at the end of the book, with the definitions, on the ground that if these were first learned the things corresponding could be easily recognized on occasion.

This was the introduction to nature, and this is not a solitary example. There are hundreds of high schools and academies, as well as colleges, where thus the method curses the subject. This means a great deal. What a plea against such methods was the whole life of Prof. Agassiz!

There are being made well directed efforts, in some of our cities and towns, to have the subject introduced into the common schools, and this fact, with the other fact that the subject is in our high school programmes, permits us to estimate the condition of natural history in the schools to-day. The reason for the present state of things is perhaps unimportant, but it is not because educators for half a century have not been agreed as to the principles which govern the case. It is curious to observe that in the face of this agreement, and the fact that the statement of the principles has become so frequent in convention as to be almost stale, few in authority have essayed to take the first logical step in the indicated direction.

The speaker prefaced his remarks upon the condition of natural science as it ought to be in the schools, by saying that he was not a proficient in the subject, and in no sense a specialist, being personally more interested in other subjects.

As it was shown to be true on the one hand that natural history is not in the schools, the speaker maintained on the other hand that it ought to be there. First, for the knowledge it offered, which answered one aim of education. Second, because the knowledge is

more valuable and practical than much now given. Third, it answers the purpose of a right training of faculties, according to natural and acknowledged laws. This answers a second aim of education; it answers the demand for a method which shall be in accordance with the natural development of the mind. Attention, observation, perception, discrimination, comparison, deduction, induction. Attention is first called to sensible objects. To train the senses then is important. What studies do it? Do we not need keen senses? Prof. Chadbourne says, "the material world is the means which God has appointed first to arouse the mind of man to action, and the only foundation for the highest processes of thought in the boundless field of mental speculation. It is only through the senses that this outward world can reach the mind, to excite its action or furnish it with materials." Here, then, is the first work of natural history in education, to educate the senses. Is not the introduction of drawing into our schools a testimony to the demand for educated senses as well as educated tastes?

Not only do natural history studies educate the senses to observe, but to compare and lead the mind to judge, and in other ways train the highest mental powers. As the matter now stands much of our work is a pyramid set upon its apex; we deal with babes in intellect as with grown men and women. To ring the changes upon perception and observation and then assign abstruse problems in induction is too common. To sharpen razors on a grindstone and wonder they will not shave is no worse. Nature kicks at it, scholars don't like it and rebel, mothers and fathers wonder what's the matter and worry because children are crowded so.

A part of the trouble is due as much to bad methods in arithmetic, grammar and geography as to the wrong position of those studies, or the expectation that they will do the work for the young mind that is not suited to them and is suited to natural history.

The speaker disavowed any claim for natural history as a panacea for all the ills the educational flesh is heir to, but thought that fresh air from the natural world was a necessity for healthful lungs and minds, and that this subject put naturally into the primary schools would remedy much of the difficulty in our foundation work.

The movement of education is evidently in the direction more favorable to natural history. Sup't Harris' masterly scheme of study in this department for the St. Louis schools, from lowest to highest, was an early wave, and the recent introduction of books on nature into the Boston schools and into those of other progressive cities and towns is significant.

It will soon be quite the fashion to study natural history. Salem will come to it, and Peabody and Beverly and Wenham and Essex



will sooner be out of the world than out of the fashion, and we shall all study it.

Look out then that it doesn't swamp us. The book-makers will enter the field, and we shall not lack for book instruction, and since that is so easy to give, the spread of natural history will be rapid as it will be *killing*, for, mark just here, that it is not arithmetic, nor geography with which we are dealing,—it is Nature, and every unnecessary remove from herself in the study, is a move toward dulling faculties instead of quickening them, is a move toward death, not life. Nature herself should be the study if it is possible, and it almost always is, even in cities.

The nearest approach to nature in the shape of pictures, models and dried specimens should be the only permitted plan in lieu of the former. To recite from a text-book alone, here, even the interesting glossary, is to kill enthusiasm, dull perception, blind observation, and make an added routine, where it was to be especially avoided. The speaker said that the brief half-hour did not permit an exhaustive statement of the reasons for his second proposition, viz., that natural history ought to be in the schools, but trusted that with the following from Mr. Chadbourne he had given some answer to those who asked the educational value of natural history.

"It gives problems for the deepest thought; it has power to make the earth yield her mineral treasures and to bring forth more abundantly every desirable form of vegetable and animal life. It is a volume ever open, ever inviting the mind to activity without weariness. It saves from the confinement and wear of other studies, and makes the hours of physical exercise the most profitable in storing the mind. It gives standards of the beautiful, and, by developing a true taste, gives to the student the highest type of mental cultivation and secures to him unfailing sources of enjoyment, so long as sight and hearing remain.

It goes deeper still, and, revealing the divine nature, leads to the sublimest contemplations, elevating the moral nature, thus ennobling the whole man, and strengthening the only sure foundation of all that is truly noble in our natures. Shall such a study be ignored in our systems of education? Shall it be left like a beggar to find here a hearty welcome and there to be driven from the door?"

The final question is, then, What are we going to do about it? The speaker said his answer to this third point would be as brief as his propositions regarding the first two. 1. Natural history is not in the public schools. 2. It ought to be there. 3. Put it there. If two bodies or studies cannot occupy the same space at the same time, something must give way, if the school curriculum is full. The speaker was ready to accept the logic of the situation. If primary schools cannot find time for it, those in authority must be shown how

it may be reading, spelling, writing, and almost arithmetic lesson, and these will at once become more agreeable. Some would find time and place in one way, some in another. Prof. Thompson, of Worcester, says there is a chance for it as a substitute for much of present English grammar.

The speaker thought that a good teacher would find the easiest way to prepare a scholar to pass a high school admission examination would be to give him through his earlier years arithmetic, geography, etc., with natural history, rather than without, and that he could be better prepared in this way for his future studies. So the logic of the matter will not abide the objection that it interferes with curriculum,—remodel the curriculum is the stern necessity.

The question of time may be partly solved by considering that the routine of daily school work needs frequent breaks and "it is often a gain to lay aside common studies and spend an hour in natural history." Even an hour a week would be of good advantage if the method were in harmony with the topic.

The objection regarding lack of knowledge on part of teachers was also considered and answered. The speaker said that if the thing was a necessity, all the lions in the way must yield. He thought teachers were more alive to the matter than school committees. In conclusion he offered as an illustration of how something might be done, an account of a plan he had tried, partly on the suggestion of Dr. Ebell, of New York. It had not been tried long enough to permit him to speak much of the results, but it at least offered a beginning. We find in the "Massachusetts Teacher" for July an account of the plan, which we give in place of an abstract of the speaker's remarks.

"Natural history finds no place in the curriculum of study in our schools (in P.), except in the high school, in the subject of botany. The high school teachers are not specially scientific in their tastes, and natural history furnishes to none of them the attractiveness or congeniality that literature or mathematics would afford.

Yet, moved by many motives which space forbids mentioning, we have organized a society of natural history. It is a voluntary organization. It has its by-laws, drawn up by a committee of members, crude but satisfactory. It admits anybody, in school and out, who will pay ten cents and sign its rules. Its object is, primarily, to collect and preserve specimens of all the plants in the limits of the town. But secondarily, exercise and pleasure are its objects. The observation and collection of minerals, insects, etc., furnishes a further attraction.

It has a president, vice-president, treasurer, two recording and one corresponding secretary, an executive committee, a cabinet committee and a librarian; and thus far all except the librarian have had employment. It requires an excursion every Wednesday afternoon, for which the executive committee arrange, and in which every mem-

ber must unite or present some specimen of real value to the cabinet or pay a small fine. It keeps a careful record of all its doings and excursions, and means to get help wherever it can.

It has not yet attracted many persons of mature years to its ranks, but it has called in members from outside the school, and its influence is just beginning.

All will recognize the difficulties attending such a society, but the result is worth the care. We hire a large team, or use the horse or steam cars, or go on foot, to reach our fields of work. We take bottles, knives, baskets, a hammer, and other implements for collection, botany cases if convenient, a book for pressing, or whatever can be easily obtained,—to be carried by different members, or by each member; rubbers and old clothes for all.

We laugh and talk, and hammer stone walls, and dig roots and search meadows; we climb hills, struggle through brambles and find rich reward for our search. We hunt for crabs on the beach and chase butterflies in the field, and drink fresh water from the springs. In short, we have a good time, *and* study natural history. We carry text-books sometimes, we read in the library at others; what one learns is common property. If the afternoon of Wednesday is rainy, we spend it in the school-room examining and studying specimens. The town gives us a cabinet, and the scientific society in the neighboring city loans us a box of representative insects and other specimens of interest.

The society has collected but little except in botany. But everything is fish that comes to our nets. We have several crabs in alcohol, star-fish, sand-skippers, a lizard, a frog, shells and sea-weeds, butterflies and insects, minerals, and some last year's bird's nests—we are too pitiful to take the new ones. The cabinet has had some gifts of minerals and curiosities, and it asks and expects more.

Its members get tired and do not feel like listening to lectures after their long tramp, but they hear patiently a few words from their president, and ask and answer many questions. But they have rosy cheeks and broadening chests, and they know there is a world to observe, more clearly than they have ever known it before. They all like it; and, although not so scientifically inclined as born naturalists would be, answer, we think, every reasonable expectation. If they will learn to observe, compare, and classify, we think it may help them to buy sugar and cotton cloth, coffee and ribbons, when they become merchants; and likewise to keep these things in order. And who knows but that one of our uneasy boys, or meek and gentle girls, may find a life path open from among the hills of our excursions?

We could write much more of what we have seen and what we see ahead; of what we have done and what we intend to do. We have not tried to make the whole operation clear in these pages, but to us our experiment looks like a success. We do not think it more particularly suited for trial in High than in Grammar, or even Primary Schools. And we are very sure that in the latter something of the sort might be an invigorating auxiliary to the *study* of the *alphabet*, which is the alternate horror with folded arms and stiffened necks, in so many of our primary schools."

Mr. F. W. PUTNAM said that he had listened with

great pleasure to the paper by Mr. Groce, and he congratulated the Institute that at last a teacher in our public schools had taken the platform of the Institute, and declared that, though no naturalist himself, he had become convinced that the judicious teaching of natural history in the schools would do more good to the pupils than some of the studies they now pursue. This being the stand that the Institute has taken for years, it has done all it could to bring about such a feeling on the part of the teachers, but with one or two exceptions the teachers themselves would not be taught, and they consequently did not appreciate the value of the study of nature. He felt confident that the day was not far distant when a teacher, before being considered qualified to take charge of a school would have to convince its committee that he at least was acquainted with the general structure of animals and plants, and the leading principles of mineralogy and geology, as well as with the rules of grammar and algebra, and now that natural history was no longer mainly the learning of the names of objects, the old plea that to study it meant simply to commit a list of names to memory would not hold. The study now consisted in reading the great principles and laws of nature, and though a naturalist was all the better able to study them by being familiar with an immense number of forms, which he must classify and have names for in order to make his knowledge easily known to others, yet it was not necessary for the pupils to know more than a few of the leading and common types and to be taught the general principles of nature, in order to lay a foundation which, as Mr. Groce had so well said, would be one that, throughout all walks of life, would prove of far greater value than much of the routine instruction now given, if, indeed, the word instruction can be used to express that



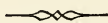
which is forced into the young mind to-day, to be forgotten, or put aside as useless, on the morrow.

Mr. Putnam hoped that this was only the commencement of a series of similar papers to be brought before the Institute by our teachers, and he assured them that all true naturalists would give their aid in bringing about so desirable a result as the proper teaching of natural history in our schools.

Vice President, A. C. GOODELL, related some of his experiences at school, and said that these had taught him the importance of knowing *things* rather than terms; in other words, that scientific education was the only real learning.

The Secretary, Mr. JOHN ROBINSON, presented a collection of presidential medals of 1860, Lincoln, Bell, Douglass, Breckenridge; of 1864, Lincoln and McClellan; and many specimens of the tokens of 1837 to 1841. He gave a very interesting historical notice of the several issues, and spoke of the desirableness and importance of making a complete series of these memorials of the different presidential campaigns.

Adjourned.



#### REGULAR MEETING, MONDAY, JAN. 19, 1874.

Meeting this evening at 7.30 o'clock. The PRESIDENT in the chair. Records read.

The SECRETARY announced the following correspondence:—

From F. E. Hotchkiss, New Haven, Conn., Jan. 12; F. B. Hough, Lowville, N. Y., Jan. 5; Charles D. Smith, Goshen, N. Y., Jan. 8; William C. Wood, Wenham, Jan. 10; W. H. Youmans, Columbia, Conn., Jan. 5; Belfast Naturalist's Field Club,



Oct. 16; Société National des Sciences Naturelles de Cherbourg, Sept.; Société d'Agriculture, Sciences et Arts de la Sarthe, Nov. 27; Literary and Philosophical Society of Liverpool, Dec. 1; New York Genealogical and Biographical Society, Jan. 5; Yale College, New Haven, Jan. 14.

The LIBRARIAN reported the following additions :—

*By Donation.*

- BOLLES, E. C. Miscellaneous pamphlets, 6.  
 BROOKS, Mrs. H. M. Woman's Journal for 1873.  
 BUTLER, B. F., of U. S. H. R. Speech in the U. S. H. R., Jan. 7, 1874, by donor.  
 Speech of Hon. R. B. Elliott in the U. S. H. R., Jan. 6, 1874.  
 CROSBY, A. The Commonwealth for 1873.  
 HALL, E. W., of Waterville, Me. Historical Discourse at the Fiftieth Anniversary of Colby University, Aug. 2, 1870, by J. T. Champlin. Catalogue of the Colby University, 1873-74. Obituary Record, with Supplement, 1822-73.  
 HARRIS, D. L., of Springfield, Mass. Annual Report of the City Library Association of Springfield, May 6, 1873.  
 NATIONAL ASSOCIATION OF WOOL MANUFACTURERS. Bulletin, Oct.-Dec., 1873.  
 RICHARDSON, W. A., of Washington, D. C. Annual Report on the State of the Finances to the Forty-Third Congress, 1st Session, Dec. 1, 1873. 1 vol. 8vo.  
 U. S. PATENT OFFICE. Official Gazette, Jan. 6, 13. 1874.  
 WATERS, J. L. Miscellaneous pamphlets, 15.  
 WILDER, M. P., of Boston. Address of donor at the Annual Meeting of the New England Historic-Genealogical Society, Jan. 7, 1874.  
 WILLIAMS, Mrs. C. F. Miscellaneous Log Books, 31.

*By Exchange.*

- BOSTON PUBLIC LIBRARY. Bulletin, Jan., 1874.  
 HARVARD COLLEGE. Forty-eighth Annual Report of the President. 1872-73.  
 IOWA STATE HISTORICAL SOCIETY. The Annals of Iowa, Oct., 1873.  
 NEW YORK GENEALOGICAL AND BIOGRAPHICAL SOCIETY. Genealogical and Biographical Record, Jan., 1874.  
 PUBLISHERS. Forest and Stream. Gloucester Telegraph. Haverhill Gazette. Ipswich Chronicle. Lawrence American. Lynn Reporter. Lynn Transcript. Medical and Surgical Reporter. Nation. Peabody Press. Salem Observer. Salem Post.

Mr. F. W. PUTNAM exhibited several rare and interesting fishes from the harbors of Marblehead, Salem and Beverly, as follows :—

*Cryptacanthodes inornatus* Gill. The Ghost-fish. A fine specimen of this very rare species was taken in Marblehead harbor by Mr. Tucker of that town, while spearing for eels through the ice in December last, and presented to the Peabody Academy of Science by Mr. Wm.

Goodwin, 4th, of Marblehead. This species was first described by Dr. Gill from a specimen obtained on the coast of Maine by Dr. Stimpson, and now in the collection of the Smithsonian Institution. Two other specimens, a male and a female, are also in the Museum of Comparative Zoology; one was taken on the coast of Maine, and the other at Swampscott, Mass. The only other specimen known is the one now exhibited.

*Liparis lineatus* Kroyer. Sea Snail. One of the most interesting additions to our county collection of fishes was made by Mr. J. H. Sears in October last, when he found adhering to a root of kelp in about six feet of water near Baker's Island, a fine specimen of the striped variety of this fish. While living, the stripes were red, with lighter lines between. This is the first instance of the capture of the striped variety of this species in our New England waters, though several specimens of the brown and marbled variety have been obtained. It is therefore a very important addition to our fauna, as it proves that both varieties occur in our waters, as well as in the northern waters of Europe. As there has been some question as to the *Liparis lineatus* being the same as *L. vulgaris*, I will state that from an examination of a number of specimens from European waters, embracing both varieties, and several from our own waters, I have been unable to separate the two forms specifically, and even the markings of the varieties, though so distinct in some specimens, run into each other. The name of "sea snail" was given to this fish by the old writers from its sluggish habits and its soft, slimy body. It never attains a size of more than four or five inches, and is allied to the lumpfish of our waters.

*Platessa glabra* Storer. Smooth Flounder. For a long time this fish was known only from the description and

figure of the single specimen obtained in Massachusetts Bay by Dr. Storer, but during the last season it was found in numbers on the coast of Maine by the United States Fish Commission under Prof. Baird, and on recently looking over the collection of fishes in the Museum of the Academy, I found several specimens, including a very young one, taken in our harbor, which have been presented to the Academy at various times during the past six years by Mr. Walker, the well known fisherman of this city, who has added so many interesting specimens to our collections.

Mr. ALFRED PEABODY, one of the pioneers in the California enterprise, read a very interesting paper on the early days and rapid growth of California. After a brief review of the acquisition of the territory and the discovery of the gold fields, he proceeded to the narration of his personal experience. Immediately after the announcement of the discovery, and the knowledge that a large immigration from the neighborhood had set in, Mr. Peabody applied to John Bertram, Esq., of Salem, who, with his usual energy, engaged in the enterprise. With five others Capt. Bertram fitted out the barque "Eliza," which sailed from Salem for San Francisco, Dec. 23, 1848, under command of Capt. A. Staniford Perkins, with a cargo of provisions, clothing, mining tools, lumber, etc., and a scow for dredging. She took as passengers, Messrs. Alfred Peabody, who was part owner and supercargo, John Beadle, Jr., Dennis Rideout, Geo. R. Buffum, Geo. W. Kenny, and Jona. Nichols, of Salem, and J. H. Parker, of Boston.

The "Eliza" was the first vessel from Massachusetts fitted expressly for California with such a cargo, although Capt. Eagleston had actually cleared the brig "Mary & Ellen" for the Sandwich Islands *via* California, and sailed Oct. 28, changing his first destination on account of the

fever having set in. The circumstances of the sailing of the "Eliza" were vividly narrated, including the singing of the famous California ditty, with the refrain:—

"Oh! California! That's the land for me!

I'm going to Sacramento with my wash-bowl on my knee—"

composed by Mr. Jonathan Nichols, well remembered as a humorist of rare poetical and musical talent.

The "Eliza" arrived at San Francisco, June 1, 1849, after a passage of one hundred and sixty days, landing at a wharf forty feet long, the only one in the place. They afterward took the barque up the river to Sacramento, paying a pilotage of one thousand, seven hundred and twenty-five dollars for one hundred and twenty miles, the feat having been successfully performed in six days by the best pilot upon the river. The vessel was for a long time used as a store house, boarding house, wharf, etc. Mr. Peabody traced the gradual rise and growth of the city, the prevalence of lynch law, the custom which had grown up of disregarding the Sabbath, the gambling places, the rough ways, and the disposition of everybody to do something in the way of work to make money, regardless of previous social position.

Mr. Peabody gave some very interesting details respecting the disposal of the cargo and the prices then prevailing. In one instance the sum of eighty-five dollars was paid for a bag of onions (two bushels) which passed through his hands.

Mr. Peabody's knowledge of the development and growth of business was of necessity closely connected with his personal experience in the house of Flint, Peabody & Co., begun Dec. 1, 1850. The trade was pursued with energy, and three vessels, sent out by Capt. Bertram, arrived in the spring of that year. Capt. Perkins sailed for home in June, 1850, and was the first to

verify the song about returning with "a pocket full of rocks."

At about this time the need of quick passages and clipper ships became apparent. In September, 1850, a contract was made with East Boston parties to build a clipper of eleven hundred tons, and she was built, rigged and fitted so as to sail on Jan. 10 following, with a full cargo. She was one of the Glidden & Williams line, and the freight was one dollar per foot. She was named for Capt. John Bertram, who had manifested so much energy and spirit in this new trade. The croakers said the vessel was "thrown together," and would not last long; but she was sold eighteen years ago and has been running ever since. On the 12th of last month she was in New York, and the captain, her present owner, wrote to a gentleman in this city, asking for a portrait of Capt. Bertram to hang in her cabin. This was the first clipper built for the California trade; but she was soon followed by the "Witch of the Wave" and four others, averaging fifteen hundred tons each.

In 1853, Messrs. Bertram and others, with Flint, Peabody & Co., established the ice trade; but afterwards this article was introduced from Sitka (Russia) at lower cost than from Boston, and so this trade was destroyed.

In June, 1851, a great fire occurred, destroying property to the amount of four million dollars, and burning out Messrs. Flint, Peabody & Co., who lost heavily, having no insurance.

As illustrating the changes which have taken place in the commerce of San Francisco, the San Francisco almanac for 1859 gives a statement of the amount paid as freight to, and the number of tons of cargo carried by, and the vessels consigned to, a single house, Messrs. Flint, Peabody, & Co., agents for Messrs. Glidden & Williams' line between Boston and California, commencing with the



arrival of the first ship of that line, the J. Bertram. During six years there were two hundred and seven ships, three hundred and forty-five thousand, three hundred and ninety-eight tons of goods—the amount of freight being \$5,965,802.14. In one year, four ships arrived in a single month. In 1859 Messrs. Flint, Peabody & Co. received a full cargo of flour from Boston, six thousand, five hundred barrels, which paid a fair freight. In 1869, during the six months from July to December 31, the shipments *from* San Francisco of wheat and flour were equal to one million, six hundred thousand barrels. The same year the wool clip of California was fifteen million pounds, all of fine quality. The value and destination of treasure shipped from San Francisco in sixteen years, from 1854 to 1869, are as follows:—

Eastern ports,	\$462,088,066
England,	167,703,292
China,	68,050,250
Panama,	9,053,526
Other ports,	17,598,824
	<hr/>
	\$724,493,958

The duties on imports in 1859 were \$8,339,384.14. The value of mining stocks sold at the broker's board at San Francisco the same year was thirty millions. During the past year only two ships loaded in Boston for San Francisco.

In 1854 the amount of gold mined had been \$15,000,000; sixteen years later, it had increased to nearly \$725,000,000.

In 1859, sixty-five hundred barrels of flour were *imported* into San Francisco from Boston; in 1869, wheat and flour equivalent to one million, six hundred thousand barrels were *exported* from San Francisco, and in 1873 the wheat crop of California was equal to eight million barrels of flour.

# BULLETIN

OF THE

## ESSEX INSTITUTE.

---

---

VOL. 6.

SALEM, MASS., FEB., 1874.

No. 2.

One Dollar a Year in Advance. 10 Cents a Single Copy.

---

---

REGULAR MEETING, MONDAY, JAN. 19, 1874.

[*Continued.*]

MR. JOHN ROBINSON, after expressing his pleasure at the reading of the foregoing paper, moved that the thanks of the Institute be presented to Mr. Peabody, and that a copy be requested for printing in the Publications of the Institute—adopted.

MR. F. W. PUTNAM followed, and alluded to the sailing of the barque "Eliza" in 1848, and his presence on the wharf on the interesting occasion, he being then a boy and entering into all the enthusiasm of the crowd that had there assembled, and said that he had listened with great interest to the paper by Mr. Peabody, from its bearings on archæological facts. Here was a case illustrating the sudden rise of numerous and large towns, embracing extensive works, during his own boyhood, and in less than a quarter of a century many of their well

known and thriving towns and settlements had been deserted and left to decay; the agencies of nature had been at work, and now the sites of many once extensive mining towns could only be made out by researches similar to those by which prehistoric cities were re-discovered. Such facts should certainly teach us to be careful in our deductions regarding the time required for the rise and fall of more ancient cities.

After remarking on the older and prehistoric races of men that had once inhabited our country, he alluded to the probably more recent Indian race found in New England at the time of its settlement by our forefathers, and passing in review some of the more ancient relics from the graves of the departed race, he exhibited a small collection of articles and two human skulls which he considered as possessing great interest in connecting the past with the present, and as illustrating the transition period in this country, when people of the stone age were brought suddenly face to face with the highest civilized race.

The collection referred to consisted of two well preserved Indian skulls, two fish spears cut out of bone, quite a number of shell beads, or wampum, a pair of iron scissors very much rusted and corroded, and a brass handled pocket knife of very old style. These had all been found in a few Indian graves that had been discovered in digging away a gravel hill at Saugus, on the farm of Joseph Ballard, Esq., who presented them to the Institute. The association of the various articles found in the graves shows that the habit of depositing the choice possessions of the departed with the body in the grave was continued after the Indians had come in contact with the whites.

Mr. Putnam then alluded to the probably universal

custom with uncivilized races, of depositing articles of various kinds in the grave with the body, or of making offerings at the grave, a custom that, more than all others, has enabled us to discover so much in the history of what would otherwise be indeed the lost races of the world; and he thought that our own tender offerings of flowers, at the graves of our loved and gone, were but a civilized method of expressing the same feeling that induced the savage and barbarian to place with the body the articles that had been cherished while living, or to offer sacrifices at the grave. Though with the savage the cause of the act is to provide for the future and unknown life, while with us it is a tribute to the life that has passed.

The SECRETARY spoke of the good condition and extent of the continental paper currency in the rooms of the Institute, and mentioned that the exchange of specimens which he was arranging with William S. Vaux, Esq., of Philadelphia, if consummated, would add very materially to its interest and value. He moreover solicited contributions to this department of our collections while the same may be found in many of our old houses before being irrevocably lost.

Harriet E. Carlton, Frank N. Chapman, Andrew Fitz, Horace S. Perkins, Octavius B. Shreve, John P. Tilton, all of Salem, and Albert S. Rowell, of Lynn, were elected resident members.

## REGULAR MEETING, MONDAY, FEB. 2, 1874.

MEETING this evening at seven and one-half o'clock.  
The PRESIDENT in the chair. Records read.

The SECRETARY announced the following correspondence:—

From A. A. Agge, Jan. 22; Mary J. Safford Blake, Boston, Jan. 26; E. P. Boon, New York, Jan. 20; Francis N. Chapman, Jan. 28; Andrew Fitz, Jan. 20; G. L. Gleason, Jan. 20, 29; James J. H. Gregory, Marblehead, Jan. 27; Edward W. Hall, Waterville, Maine, Jan. 24; O. B. Shreve, Jan. 24; A. A. Scott, Saugus, Jan. 28; Walter P. Willett, New York, Jan. 19; Boston Society of Natural History, Jan. 22; Buffalo Historical Society, Jan. 26; New York Mercantile Library Association, Jan. 28; New England Historic-Genealogical Society, Jan. 27.

THE LIBRARIAN reported the following additions:—

### *By Donation.*

APPLETON, FRANCIS H., of Boston. Bulletin of the Bussey Institution, 1874.  
BUSWELL, E. W., of Boston. Transactions of the Mass. Horticultural Society for 1873.

CUTTER, ABRAM E., of Charlestown, Mass. Annual Report of the School Committee of Charlestown for 1873.

FITTS, JAMES H., of Topsfield. Manual of the Congregational Church in West Boylston, by donor. Genealogy of the Fitts or Fitz Family in America, by donor.

HANAFORD, P. A., of New Haven, Conn. Historical Sketch of the First Universalist Church and Society in New Haven. 1873. Constitution, By-laws and Register of the First Universalist Church in New Haven. 1874.

HOLMES, JOHN C., of Detroit, Mich. Second Annual Report of the Michigan State Pomological Society for 1872. 1 vol. 8vo. Lansing. 1873.

PACKARD, A. S., Jr. Our Common Insects, by donor. 1 vol. 12mo. Salem, 1873. Catalogue of the Phalanxideæ of California. No. 2. Boston, 1874.

SEVENTH-DAY ADVENTIST TRACT SOCIETY OF NEW ENGLAND. The Constitutional Amendment, a Discussion. 1 vol. 12mo. Battle Creek, Mich. 1873.

STEVENS, CAROLINE. Sermons at Salem on the Death of Gen. Geo. Washington. 1 vol. 8vo.

TUCKER, JONA. The Autobiography of an Octogenarian, by D. N. Prime. 1 vol. 12mo.

UPTON, E. W., of Peabody. The Upton Memorial by John A. Vinton. 1 vol. 8vo. Bath, Me. 1874.

UPTON, JAMES. The Upton Memorial, by John A. Vinton. 1 vol. 8vo. Bath, Me. 1874.

U. S. PATENT OFFICE. Official Gazette for Jan. 20, 27, 1874.

WEBBER, CHAS. H. Laws of North Carolina. 1797.

WHEATLAND, S. G. American State Papers. 8 vols. 8vo. Adjutant General's Report for 1863, 1864. 2 vols. 8vo. Railroad Returns, 1864. 1 vol. 8vo. Manual for the General Court, 1861, 1862, 1867. 3 vols. 12mo. Twenty-First Annual Report of the Board of Education. 1 vol. 8vo. Salem Directory, 1859. 1 vol. 12mo. Boston Almanac, 1858. 1 vol. 16mo. Miscellaneous pamphlets, 205.



*By Exchange.*

BOSTON PUBLIC LIBRARY. Bulletin of the, for Dec., 1867, Feb., 1868, Dec., 1869. Second and Fourth Annual Reports of the, 1854, 1856.

ENTOMOLOGISCHEN VEREINE ZU STETTIN. Entomologische Zeitung. Jahrg 34. 1 vol. 8vo. 1873.

KÖNIGLIGA VETENSKAPS-SOCIETETEN ZU UPSALA. Nova Acta, Vol. viii. Fasc. ii, 1873. Bulletin Météorologique Mensuel, Vol. iv, Nos. 1-12, 1871-72. Vol. v, Nos. 1-6, 1872-73.

KÖNIGLICHEN AKADEMIE GEMEINNÜTZIGER WISSENSCHAFTEN ZU ERFURT. Jahrbücher, Neue Folge, Heft. vii. 1873. 1 vol. 8vo.

LITERARY AND PHILOSOPHICAL SOCIETY OF LIVERPOOL. Proceedings, No. xxvii, 1872-73. 1 vol. 8vo. 1873.

NATURHISTORISCHER VEREIN DER PREUSSISCHEN RHEINLANDE UND WESTPHALENS IN BONN. Verhandlungen, Jahrg, 29, 30. 3d Folge, ix and x. Bd., 1872-73. 2 vols. 8vo.

NATURWISSENSCHAFTLICHEN GESELLSCHAFT ZU CHEMNITZ. Vierter Bericht, 1871-72.

NEW ENGLAND HISTORIC-GENEALOGICAL SOCIETY. Proceedings of the, at the Annual Meeting, Jan. 7, 1874.

NEW YORK LYCEUM OF NATURAL HISTORY. Annals, Nos. 6, 7, 8, 9. 1872-1873.

PHYSIKALISCH-MEDICINISCHE GESELLSCHAFT IN WÜRZBURG. Verhandlungen, Neue Folge, Bd. iv, Heft. 2-4. 1873. Bd. v, Heft 1, 2, 3, 1873.

PUBLIC LIBRARY OF INDIANAPOLIS. Catalogue of the, for 1873. 1 vol. 8vo.

SENCKENBERGISCHE NATURFORSCHENDE GESELLSCHAFT ZU FRANKFURT A M. Bericht, 1872-73. 1 vol. 8vo.

SOCIÉTÉ DE PHYSIQUE ET D' HISTOIRE NATURELLE, GENÈVE. Mémoires, Tome xxiii. 1 vol. 4to.

PUBLISHERS. American Journal of Science. American Naturalist. Forest and Stream. Gardener's Monthly. Gloucester Telegraph. Hardwicke's Science Gossip. Haverhill Gazette. Historical Magazine. Ipswich Chronicle. Lawrence American. Lynn Reporter. Lynn Transcript. Medical and Surgical Reporter. Nation. Nature. Peabody Press. Sailor's Magazine and Seaman's Friend. Salem Post. Salem Observer.

John E. Lyon, of Salem, was elected a resident member.

Richard A. Proctor, of London, England, was elected a corresponding member.

The Secretary, Mr. JOHN ROBINSON, stated that the donation of paper money from W. S. Vaux, Esq., of Philadelphia, had been arranged in the collection of the Institute.

He gave a very interesting account of the continental

paper currency, and alluded especially to the recent very valuable addition of some one hundred and fifty specimens of the currency of the colonies of New Jersey, Pennsylvania, Delaware and Maryland, and also of the United States issue. Many of these specimens are very rare and interesting.

Mr. F. W. PUTNAM gave an account of the Blackfish shot in Salem harbor in October last by Capt. Charles Osgood, and now on exhibition. He also exhibited a stereoscopic view of the animal, and stated that a large photograph was to be taken.

Unless this species proves on comparison to be the European *Globiocephalus melas*, it will be known under the name of *G. intermedius*, given it by Dr. Harlan,\* who first described the American animal from a specimen captured in our harbor in September, 1823. Dr. Harlan's specimen was sixteen and one-half feet in length, and his description applies to the present specimen, though the figure which he gives is very poor and would mislead in several particulars.

Mr. Putnam then gave an account of the several families of cetaceans and the general structure of the order, and stated that while the blackfish was more closely united to the grampus and dolphins than to the large and true whales, yet, in the general acceptance of the term, the blackfish was a whale. He then gave the following notes, taken soon after the specimen was captured.

Head very blunt. A slight protuberance of the upper jaw beyond a line dropped from the top of head, which is slightly rounded. Line of back to the dorsal fin, straight; posterior to the fin the outline is slightly descending to

---

\*Journal Academy Natural Sciences of Philadelphia, vol. vi, part i, p. 51, pl. 1, 3 (1829).

near the tail fin, where it drops suddenly to the base of the fin. The abdominal outline is flat from tip of under jaw to the pectorals, thence slightly bulging for the length of the pectorals, thence ascending to the tail fin. Body rounded; sides of head and tail compressed. Jaws nearly straight. The teeth in front of jaws had been dropped, leaving but ten teeth on one side of upper jaw and nine on the other, while the under jaw had ten on one side and eight on the other. The teeth small and bluntly pointed. Upper jaw fourteen inches in length; under thirteen inches. Pectoral fins long, narrow and pointed. Blow hole in centre of top of the head, directly over the eye; width of the opening three and three-fourths inches.

Eye three and one-half inches distant from angle of mouth, small, one and one-quarter inches long and one-half an inch in transverse diameter. Height of head from tip of upper jaw to top of forehead, one foot. Distance from forehead to blow hole, one foot, seven inches; from blow hole to base of dorsal fin, two feet, nine and one-half inches; length of dorsal fin, three feet, one inch; distance from anterior base of dorsal to its point, measured along the curve of the edge of the fin, two feet, eleven inches; distance between the same points measured across the fin, two feet, eight inches; from the point of the fin to its posterior base, measured along its back edge, one foot, four inches, and on a vertical line, one foot. Distance from anterior base of dorsal to base of tail fin, nine feet; to tip of flukes, eight inches more. Expanse of flukes, three feet, four inches. Distance from tip of under jaw to anterior base of pectoral fin, two feet, two inches; width of pectoral at base, eleven inches; at about its anterior third, eleven inches; length of pectoral, four feet. Distance from tip of under jaw to base of penis,

seven feet, six inches; to anus, nine feet, one inch; to centre of flukes, fourteen feet, two and one-half inches. Total length measured over the surface of the body, fourteen feet, five inches. Penis slender, six inches long, enclosed in a sheath. Greatest circumference of body at anterior base of dorsal, six feet, eleven inches. Circumference at penis five feet, ten inches; at anus, four feet, eight inches. Distance between pectorals, one foot, two and one-half inches.

Color lustrous black above, lighter on sides, under parts with a broad white band, heart-shaped forwards on the throat, extending backwards, gradually narrowing to the anus.

The stomach contained a number of bones of codfishes and several large pieces of kelp. The intestine measured one hundred and eighty-nine feet in length.

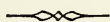
Mr. C. H. HIGBEE, of the curators on the Arts, reported that arrangements had been made with Prof. Walter Smith, principal of the State Normal Art School in Boston, to deliver a lecture on "Art Studies" at the next meeting of the Institute, and that several persons had expressed great interest in this object and would aid in sustaining meetings for the discussion of subjects on art matters and contribute to occasional exhibitions of paintings, drawings and other specialties in this department, that may be held under the auspices of the Institute.

QUARTERLY MEETING, WEDNESDAY, FEB. 11, 1874.

MEETING this afternoon at three o'clock. The President in the chair.

William S. Vaux, of Philadelphia, was elected a corresponding member.

After the transaction of the ordinary business of the meeting, adjourned.



REGULAR MEETING, MONDAY, FEB. 16, 1874.

The meeting was devoted to a lecture by the Rev. Charles Kingsley, the distinguished canon of Westminster, which was followed by a reception. This was the introductory lecture of the supplementary course of entertainments under the auspices of the Institute, and was Mr. Kingsley's first public lecture in America. He was introduced to the audience by Vice President D. B. HAGAR, who said :—

LADIES AND GENTLEMEN :

I am sure that it is with no common pleasure that we welcome to our platform, to-night, the distinguished lecturer. We welcome him not only as one whose works have been read by us with delight, but as our personal friend ; for surely he is a friend to us who has contributed so much to us, and we, from admiring gratitude, certainly are friends of his. I have the honor of introducing to you Charles Kingsley, Canon of Westminster, and Chaplain in ordinary to Her Majesty the Queen.

Mr. KINGSLEY, after a few prefatory remarks, proceeded to discourse of Westminster Abbey, from what he



termed a puritan and international standpoint. His presentation of the subject was masterly, and one soon forgot the peculiar style of delivery in the great thoughts, the glowing periods, and the inspiring earnestness of the speaker.

#### THE RECEPTION.

At the close of the lecture a reception was given in the rooms of the Institute, where many ladies and gentlemen were assembled to greet and welcome the lecturer. After a period of social intercourse the company were invited to partake of refreshments which were provided in Cassell's usual style; a profusion of flowers from the green-houses of Francis Putnam being conspicuous ornaments gracing the tables. The divine blessing was invoked by Rev. E. S. Atwood, and at the conclusion of the feast, the President of the Institute, HENRY WHEATLAND, addressed the company as follows:—

#### LADIES AND GENTLEMEN:

We are assembled to welcome the distinguished gentleman, whose eloquent lecture we have listened to with such pleasure this evening. And it is highly fitting, sir, that Salem should extend to you a cordial welcome—the oldest municipality in the colony of Massachusetts; settled in 1626 by Roger Conant and his companions; the sites of several of their dwellings are passed in going from this place to the railroad stations; many of their descendants are daily in our streets, and some are with us this evening. Several of the sons of Salem have, in the past, as well as recently, had peculiar relations with the mother country. Two instances may be cited: In 1638 Emmanuel Downing of the Inner Temple, London, came to Salem, and had his residence on this spot; his son George, a lad of fourteen summers, was fitting, under the

tuition of the Rev. John Fisk, for the college, where he graduated in 1642, and is the first on the roll of the Salem alumni of Harvard. Afterwards, he went to England, entered the service of Cromwell, became his Minister to the Hague, which office he retained after the restoration, and, from Charles II, received a baronetcy. Marrying Frances, sister of the first Earl of Carlisle, he became united with "the blood of all the Howards," and consequently took a high position among the leading families of the realm. Two centuries pass; another son of old Salem, born in that part now within the township of Peabody, goes to London, engages in business, is eminently successful, distributes his money by millions in founding a noble charity in London and institutions in this country for the promotion of education and general information among the people, and has tendered to him by the Queen a baronetcy, which he respectfully declines, preferring to remain an American citizen. After his death, two nations, by their representatives, two state governments, several municipalities and various literary and scientific societies and other institutions, united in doing honor to his memory. A parallel probably cannot be found on the pages of history. His remains for a short time were deposited in your Westminster Abbey, but now rest in yonder cemetery, within the limits of this city, and in the immediate proximity to the place of his birth and all the associations of his early life.

Notwithstanding, sir, this building and the portraits, books and various relics therein deposited have each a history, and many of the incidents connected therewith have an important historical value, yet the site on which it is erected is not devoid of interest, and is noted not only as the place where Downing lived in early life, but where Prescott first saw the light of day; and in the

immediate vicinity, a few rods in one direction, is the birthplace of Bowditch, and about the same distance in another that of Hawthorne—three brilliant constellations in the fields of history, science and letters.

Aside from these considerations there is one, which cannot be passed over in silence, that should induce us on this occasion to tender to you our most grateful acknowledgment, and to express to you the pleasure we all feel in having you as our guest, this evening. The nucleus of the Institute, around which cluster the various departments, as now constituted, was the Natural History Society, organized some forty years since by a few persons, some scarcely out of their teens, devoted and humble workers in the cause of natural history, and desirous that a taste for its study should be diffused throughout the community, and that a complete record of all the natural productions of this section of our state should be made and printed. Many of these early pioneers have now passed to the better land; a few remain—a connecting link between those days of small things and the present. Your writings, having contributed so much to the promotion of those objects which we have so long been striving to accomplish, will always make us your debtor, and for which we cannot cease to extend grateful acknowledgments.

Dr. Wheatland next called up Mayor COGSWELL, who said :—

It gives me great pleasure, Mr. President, to unite with you in doing honor to the distinguished guest of this occasion, and in behalf of the inhabitants, and in their name, to bid him welcome to the city of Salem, where he comes not as a stranger, but only to find that here as else-

where his fame had long since preceded him. Whether he comes as the peerless divine, the vigorous, gifted and sympathetic author, or, better still, as the man of broad and generous sympathies with all struggling for a higher, better level of humanity, he is alike welcome to our hospitality and good cheer. That he has chosen this city in which first to present himself in person to the American public is a matter of congratulation for us, and I feel that I can assure him a cordial welcome wherever he may go ; and that his experiences in this country may be as agreeable and useful as his recital of them hereafter will be frank and honest is the best wish I can express for him or for you who have come to know him. Again, sir, I bid him welcome to Salem.

Mr. KINGSLEY replied as follows :—

I thank you and the gentlemen who have just sat down for all your kindness. I will not trespass on you with a long speech. I think you have heard enough of my voice this evening, but I cannot sit down without expressing the conviction which has already ripened, that my stay in America is to be, by the blessing of God, a very pleasant one. I have met with nothing but kindness ever since I touched the shore of this land. My highest desire is to be able to interest such Americans as may listen to what I have to say, and that at some time upon the other side of the water I may meet some of those who have been my kind hosts here, and try to repay in my humble way the obligation under which they have laid me. I do feel it an honor to me that Salem should have been the point at which I made my *début* in this new world, and I shall always cherish most grateful recollections of that which has to-night brought me to feel that this is one of the great little spots of the earth. Ladies and gentlemen of

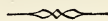
Salem, I thank you most heartily for your hospitality, and I wish your city may prosper for many years to come as it has prospered already.

The President of the Massachusetts Senate, Hon. GEORGE B. LORING, was next called upon, and made an eloquent response, concluding with the sentiment:—

HAWTHORNE and KINGSLEY, the two men of thought, culture and feeling whose duty and privilege it has been to teach Englishmen and Americans that they are of one nationality.

Other interesting addresses were delivered by Vice President F. W. Putnam, Rev. E. C. Bolles, Vice President A. C. Goodell, Jr., and Rev. E. S. Atwood, who were successively called upon, and the company separated at a seasonable hour, after an evening of great intellectual and social enjoyment.

After the reception the meeting was adjourned to Friday evening, Feb. 27, at 7.30 o'clock.



#### ADJOURNED MEETING, FRIDAY, FEB. 27, 1874.

MEETING was held this evening, according to adjournment, at 7.30 o'clock. The PRESIDENT in the chair. Records read.

Henry J. Pratt, Abraham Towle, Nathan P. Cutler, Anna C. Cutler, all of Salem, were elected resident members.

Stephen M. Allen, of Boston, was elected a corresponding member.



Prof. WALTER SMITH, of the State Normal Art School, of Boston, occupied the hour of the meeting with some interesting remarks on "Art Studies." The subject was treated under four heads. First, art museums. In this connection he explained their advantages in any city, giving as it would an opportunity to those who have artistic ability to display their own productions, or gratifying the people by exhibiting the art treasures of the favored few. He advocated the collection of antiquities, as a great desire was expressed by many people to know what had been going on in past ages in that particular line of enquiry. A museum of antiquities not only aided this interest, but enabled one to see the progress of manufacture. A picture gallery in connection was of course a most valuable adjunct. Secondly, occasional exhibitions of specialties aided very much in awakening a general interest in this object. Thirdly, a studio, with the requisite facilities, where members can pursue their work under the most favorable advantages. Fourth, lectures and discussions.

Mr. Smith, in the course of his instructive lecture, gave an account of some of the art schools in England, especially of that at South Kensington. He showed the important and intimate connection which exists between art and the great industries of a country, illustrating the subject by a reference to the advance made, of late years, in England, in various departments of labor.

Mr. Smith also alluded to the subject of drawing as a common school study. He strongly favored the teaching of drawing, as affording a useful preparation for many industrial arts, and as being, therefore, of great practical use.

The lecture afforded much valuable instruction, and was highly appreciated.

The PRESIDENT expressed his pleasure in listening to the communication of Mr. Smith, and suggested some plans by which the objects proposed could be accomplished ere long; it would require, however, the untiring industry and perseverance of some two or three interested and zealous persons, to produce the desired results. He mentioned that the adjoining estate of the late Col. F. Peabody was for sale, and spoke of the desirableness to obtain the same; this, in connection with the Plummer Hall estate, would afford a fine site for the erection of suitable buildings for scientific and art museums, libraries, reading and lecture rooms, and for other purposes.

Vice President F. W. PUTNAM followed, and expressed his interest in this movement. He alluded to the success that had attended the department of Natural History, and considered that a like success would undoubtedly attend the art department if the same labor should be given to the furtherance of that object.

Vice President D. B. HAGAR, after some preliminary remarks, moved that the thanks of the Institute be tendered to Prof. Smith for the interesting and valuable suggestions which he had presented to our consideration this evening on the subject of art studies.

Unanimously adopted.

Mr. Hagar also moved that the subject that had been introduced this evening be continued at the meeting of the Institute on Monday evening, March 16.

Adjourned.

# BULLETIN

OF THE

## ESSEX INSTITUTE.

---

VOL. 6.                      SALEM, MASS., MARCH, 1874.                      No. 3.

One Dollar a Year in Advance. 10 Cents a Single Copy.

---

REGULAR MEETING, MONDAY, MARCH 2, 1874.

MEETING this evening at seven and one-half o'clock.  
The PRESIDENT in the chair. Records read.

The SECRETARY announced the following correspondence :—

From Charles H. Bell, Exeter, N. H., March 2; John Batchelder, Lynn, Feb. 10; Phillips Brooks, Boston, Feb. 16; Charles T. Brooks, Newport, R. I., Feb. 14; D. P. Corey, Boston, Feb. 27; W. C. Endicott, Feb. 16; J. H. Fitts, Topsfield, Feb. 5; George L. Gleason, Manchester, Feb. 2, 7, 9, 23; William Graves, Newburyport, Feb. 7; Byron Groce, Peabody, Feb. 19, 24; J. C. Holmes, Detroit, Mich., Feb. 6; M. L. Huntley, South Lancaster, Feb. 12; Robert Manning, Feb.; J. Munsell, Albany, N. Y., Feb. 10; Daniel A. Rogers, Chicago, Ill., Feb. 28; N. A. Very, Feb. 16; Rose S. Whiting, Boston Highlands, Feb. 6, 10, 20; Naturforschende Gesellschaft in Emden, Oct. 15; Société de Physique et D' Histoire Naturelle de Genève, Sept. 15; Society of Antiquaries of London, Feb. 3; Société des Sciences Naturelles de Neuchatel, Oct. 2; New York State Library, Feb. 9; New York Genealogical and Biographical Society, Feb. 14; New York Historical Society, Jan. 26; Société Royale des Sciences à Upsal, Nov.

The LIBRARIAN reported the following additions :—

History of Lewis County, by F. B. Hough. 1 vol. 8vo. Albany, 1860. Gazetteer of the State of New York, by F. B. Hough. 1 vol. 8vo. 1872. Memoria's of the  
ESSEX INST. BULLETIN.                      vi                      3

Death of Washington. 2 vols. 8vo. Siege of Charlestown, 1780. 1 vol. 8vo. Siege of Savannah, 1779. 1 vol. 8vo. History of the Bills of Credit, by J. H. Hitchcock. 8vo pamph.

*By Donation.*

APPLETON, W. S., of Boston. A Rough Sketch of the Appleton Genealogy. 1873  
BUSWELL, E. W., of Boston. Schedule of Prizes offered by the Mass. Horticultural Society for 1874.

GREEN, S. A., of Boston. Miscellaneous pamphlets, 15.

HAWKINS, DEXTER A. Report on Compulsory Education, Dec. 30, 1873.

HOUGH, F. B., of Lowville, N. Y. Meteorology of New York, 1850-1863. 1 vol. 4to. Transactions of the American Institute, 1853, 1867. 2 vols. 8vo. Transactions of the New York State Agricultural Society, 1866, 1867. 3 vols. 8vo. Assembly Documents, 1843-44. 2 vols. 8vo. Digest of Claims, 1810-1858. 1 vol. 8vo. William's Register, 1831, 1835, 1843. 3 vols. 12mo. Manual for the Legislature of New York, 1854, 1858, 1871. 3 vols. 12mo. Report of the Secretary of State on the Criminal Statistics of New York, 1854, 1857. 2 vols. 8vo. Report of the Canal Commissioners of New York, 1860. 1 vol. 8vo. Buffalo City Directory, 1855. 1 vol. 8vo. Miscellaneous pamphlets, 32.

LEE, JOHN C. Commercial Bulletin for Dec. 30, 1873. Jan. 3, 10, 17, 1874.

NORTHEND, W. D. British and American Register for 1774. 1 vol. 16mo.

PERKINS, HENRY W. Report of the Commissioners on the Great Fire in Boston. 1 vol. 8vo. Boston. 1873.

U. S. PATENT OFFICE. Official Gazette for Dec. 23, 30, 1873.

*By Exchange.*

AMERICAN ACADEMY OF ARTS AND SCIENCES. Proceedings of the. Vol. iii. May, 1858-May, 1873. Boston, 1873.

BELFAST NATURALIST'S FIELD CLUB. Tenth Annual Report of the, 1872-1873.

CROSSE ET FISCHER. Journal de Conchyliologie, tome xiii. Oct. 1873.

INSTITUT HISTORIQUE IN PARIS. L' Investigateur 39 Année. Mai-Juin. 1873.

L' INSTITUT ROYAL GRAND-DUCHAL DE LUXEMBOURG. Publications, tome xiii. 1873. 8vo.

NATURWISSENSCHAFTLICHEN GESELLSCHAFT ZU CHEMNITZ. Bericht, 1871-1872.

NEW ENGLAND HISTORIC-GENEALOGICAL SOCIETY. The Historical and Genealogical Register, Jan.-Mch., 1874.

SOCIÉTÉ D' ACCLIMATION IN PARIS. Bulletin Mensuel, tome x, 2me séries, Nos. 6, 7, 8, 9, 1873.

SOCIÉTÉ D' ANTHROPOLOGIE IN PARIS. Bulletins, tomes vii, viii, 1872-73. 2 vols. 8vo.

SOCIÉTÉ NATIONALE DES SCIENCES NATURELLES IN CHERBOURG. Memoires, tome vii, 1873. 1 vol. 8vo. Catalogue de la Bibliothèque. Dec. 31, 1872.

PUBLISHERS. American Naturalist. Forest and Stream. Gardener's Monthly. Gloucester Telegraph. Hardwick's Science Gossip. Haverhill Gazette. Historical Magazine. Ipswich Chronicle. Lawrence American. Lynn Reporter. Lynn Transcript. Medical and Surgical Reporter. Nation. Nature. Peabody Press. Salem Post. Salem Observer. Silliman's Journal. The Commonwealth.

Adelaide M. Putnam, S. Elizabeth Hunt and Mary E. West, all of Salem, were duly elected resident members.

The Secretary, Mr. JOHN ROBINSON, exhibited two finely grown plants from Mr. David M. Balch, the *Amaryllis venusta*, having ten flowers on three flower stalks from one bulb; and the *Imantophyllum miniatum* twelve flowers on one stalk; also a forced *Trillium grandiflorum* which had flowered twice from each bulb.

The paper of the evening was communicated by Hon. JAMES KIMBALL, consisting of notes from the diary of his grandfather, William Russell, prior to and chiefly during the time he was confined in Mill Prison, England, in the war of the Revolution. The extracts read were very interesting, and embodied a vast amount of information relative to the character and condition of the prison, the treatment of the prisoners, when and where captured, their places of residence, previous occupation, etc.

After the reading, remarks were made by several persons, a vote of thanks passed, and a copy was requested for the publications of the Institute.

The paper is a valuable contribution to the history of the period of the revolution, and will be printed in the twelfth volume of the "Historical Collections of the Institute."

Adjourned.



## REGULAR MEETING, MONDAY, MARCH 16, 1874.

Meeting this evening at 7.30 o'clock. The PRESIDENT in the chair. Records read.

The SECRETARY announced the following correspondence :—

From Stephen M. Allen, Boston, March 3; Edwin Bicknell, Cambridge, March 2; E. P. Boon, New York, March 5; Nehemiah Cleaveland, Westport, Conn., March 9; A. C. Goodell, Jr., March 5; Daniel A. Rogers, Chicago, Ill., March 7; J. Sabin & Sons, New York, March; Leeds Philosophical and Literary Society, Feb. 26.

The LIBRARIAN reported the following additions :—

### *By Donation.*

BAKER, Dr. H. B., of Lansing, Mich. First, Second, Third and Fourth Registration Report of Michigan, 1867-8, 1869, 1870. 3 vols. 12mo.

CROSS, H. J. Genealogy of the Wells Family, of Wells, Me. Milwaukee, 1874.

CUTTER, ABRAM E., of Charlestown, Mass. Annual Report of the School Committee for 1873. Address of Jona. Stone to the City Council, Jan. 6, 1873. Farewell Sermon by Charles E. Grinnell, Dec. 28, 1873.

FORBES, R. B. Lifeboats, Projectiles, and other Means for Saving Life. By donor. 1872.

GEORGE, W. S., of Lansing, Mich. Directory of Lansing for 1873. 1 vol. 8vo. Directory of Saginaw Valley for 1874. 1 vol. 8vo. Journal of the Proceedings of the Convention of Delegates of the State of Michigan. Sept. 26, 1836.

GREEN, S. A., of Boston. Miscellaneous pamphlets, 28.

KIMBALL, JAMES. Journal and Documents of the Valuation Committee, 1890. 1 vol. 8vo. Annual Report of the Board of State Charities, 1865. 1 vol. 8vo. Agriculture of Massachusetts, 1856. 1 vol. 8vo. Miscellaneous pamphlets, 7.

MACK, ESTHER C. Dwight's Journal of Music. 4to. 20 volumes in 10. Boston.

OSGOOD, ALFRED, of Newburyport, Mass. Annual Report of the School Committee of Newburyport for 1873. Eighteenth Annual Report of the Directors of the Public Library of Newburyport. 1873. The Mayor's Address and the Treasurer's Annual Report, etc. 1873.

PUTNAM, GEO. G. American Almanac for 1830, 1832. 2 vols. 12mo.

SMITH, NATH'L, Pembroke. Annual Report of the School Committee of the Town of Pembroke for 1873-74.

STONE, E. M., of Providence, R. I. Thirty-Second Annual Report of the Ministry at Large. Feb. 1, 1874.

STONE, MARY O. The Nation. 52 nos.

SUTTON, W., Peabody. Records of the State of Rhode Island and Providence Plantations in New England, 1784-1792. 1 vol. 8vo.

TUTHILL, F. H., Kalamazoo, Mich. History and Directory of Kalamazoo for 1869-70. 2 vols. 8vo.

U. S. NAVAL OBSERVATORY OF WASHINGTON, D. C. Astronomical and Meteorological Observations for 1871. 1 vol. 4to. Washington, 1873.

U. S. PATENT OFFICE of Washington, D. C. Official Gazette for Feb. 17, 1874.

WHITING, R. S., Boston. Memoir of Rev. Samuel Whiting, D.D. By W. G. Whiting. 1 vol. 8vo. Boston, 1873.

*By Exchange.*

AMERICAN PHILOSOPHICAL SOCIETY OF PHILADELPHIA. Proceedings of, June-Dec., 1873. No. 91. 8vo pamph.

PUBLISHERS. American Naturalist. Forest and Stream. Gardener's Monthly. Gloucester Telegraph. Haverhill Gazette. Ipswich Chronicle. Lawrence American. Lynn Reporter. Lynn Transcript. Medical and Surgical Reporter. Nation. Nature. Peabody Press. Salem Observer. Salem City Post. Silliman's Journal.

William W. Kellett of Peabody was duly elected a resident member.

Agreeably to the suggestion offered at the meeting on Feb. 27th, the evening was devoted to the discussion of subjects relating to art.

Mr. GEORGE M. WHITE gave a description of the various modes of engraving—an abstract of his remarks follows :—

COPPER-PLATE ENGRAVING.

THE art of engraving on copper and taking impressions from the engraved plates, is ascribed to a native of Florence, named Finiguerra, who flourished in the fifteenth century. He was a successful workman in an art then largely practised, namely, the engraving of church ornaments, vases, sword-blades, and other articles, and filling the engraved lines with a black composition of silver and lead. This was called working *in niello*, and had a very fine effect. One day Finiguerra wished to try the effect of an engraving he had been working upon, and for that purpose cast some melted sulphur into the hollows of the lines; on removing the sulphur he noticed that some dust and charcoal which had gathered in the engraved portion

of the plate gave an impression of his design. After this he tried the effect of moistened paper pressed down on the engraving with a roller, and met with complete success. For some time he used the discovery to make copies of his designs. Finally other engravers and goldsmiths penetrated his secret, and soon the important discovery was widely diffused.

Copper and steel-plate engraving, as now practised, is subdivided into five branches, viz., line, stipple, mezzotint, aquatint and etching. Pure line engraving is one of the most difficult and tedious methods used for the purpose of illustration, and has given place, of late years, to more expeditious and less costly modes of work. A plate of copper or steel, the latter metal being preferred on account of its greater durability, comes from the manufacturer ready for the engraver's use. The plates are prepared with a perfectly sound texture and even grain throughout, and the surface is perfectly smooth and very highly polished. For copper plates the price asked is about twenty-five cents per square inch, so that the first cost of the plate alone is sometimes a considerable amount. The engraver, having received the plate ready for use, must transfer to it a careful outline of the picture he proposes to engrave. To this end, the plate is first heated until it attains a sufficient uniform heat to melt white wax, a piece of which is rubbed over it, and allowed to spread in a thin layer till the whole surface is equally covered, after which the plate is left in a horizontal position, until the wax is cold. In the interval a careful tracing of the original design is made with black lead pencil upon thin tracing paper, and this is afterwards spread over the surface of the waxed plate, with the lead lines in contact with it, and of course reversed. The tracing being secured in this position, heavy pressure is

applied, which transfers the lead lines from the paper to the wax. The engraver now takes a fine steel point, and (the tracing paper being removed) goes over the subject lightly, so as to penetrate the wax, and touch the steel-plate. By this means a perfect and delicate outline is drawn upon the plate, and, the wax being melted off, the subject is ready to be proceeded with, and finished. The instrument used in line engraving is called the *graver*, or *burin*, and is made of highly tempered steel, ending in an unequal sized pyramidal point. This instrument is held in the hand at a small inclination to the plane of the copper, and is pushed forward in the direction required to cut the lines on the plate. As the *burin* cuts the line it raises on each side a ridge of metal, technically known as the *bur*. To remove this, the engraver has recourse to the *scraper*, a triangular instrument of steel about six inches long, and having the angles ground down to sharp cutting edges. After removing the *bur* he uses a third instrument, also of steel, called the *burnisher*, to soften down the lines, and remove accidental scratches from the plate. There are few mechanical inventions used in line engraving, for the engraver depends upon the *burin* only for his effects, and by the different depths, lengths, or widths of line he produces all the various lights or shades of the original picture. There are inventions, however, to lighten the labor of the line engraver, and where a series of parallel lines are wanted, in architectural subjects, or in skies, a ruling machine is substituted. Those engravers who work for reputation seldom employ these artificial helps, and the older engravers never used them, for they were not then invented.

Next to line engraving comes engraving in *stipple*, which is nearly as difficult as the first named art. It is used in representing the flesh in portraits, for delicate

transitions of light and shade, and for drapery, or in textile fabrics, such as silk, satin, or laces. In stipple engraving the effect is produced by the cutting of small dots, the shadows being made by increasing the number and size of the dots. This process is often combined with line engraving. Sometimes a small mallet is used to strike lightly upon the plate, and beat down the impressions to the right depth, producing the same effect as the use of the *burnisher* in line engraving.

*Mezzotint engraving* is a more recent invention than line, and the process is entirely different. A mezzotint plate prepared for a design presents a surface entirely roughened by minute indentations in the metal, and by a *bur* raised by the tool with which they are made. To lay a mezzotint ground the engraver uses an instrument called the *cradle*, a piece of properly tempered steel, with a spherical face cut into sharp points, and fitted to a handle, by which the pointed face is worked over the surface of the plate until the needed *bur* is obtained. A proof taken from the plate in this state would present an intensely black tint; if the slightest portion of the ground be scraped off it would be marked in the proof by a lighter tint, a pure white only being obtained by entirely removing the ground and burnishing the metal. The work of the artist, therefore, consists in availing himself of the nature of the ground to scrape out his picture from black to white, which is effected by lancet-shaped scrapers and burnishers of various forms and sizes. To prevent accidental encroachment upon portions of the ground desired to be kept black, the engraver touches such parts with a brush filled with asphaltum or india ink, removing it again when the work is sufficiently advanced to allow of it.

A plate for *aquatint* engraving is prepared by pouring



a solution of Burgundy pitch, or mastic made in alcohol, over the plate; the solution, when evaporated, leaves a granulated ground. A proof from a plate so prepared and subjected to the action of acid, would present under a lens the appearance of an elaborate network of lines. As the plate may have been more or less subjected to the action of the acid, these lines will be more or less deep and broad, and producing tints, in printing, from the faintest stain or wash of india ink, to black. To arrest the action of the acid at the proper moment, so as to secure certain gradations of tint by means of "stopping out" with an acid resisting varnish, and at the same time to give these tints their proper form, comprises the motive and effective application of aquatint.

*Etching* is peculiarly a painter's art, requiring less technical knowledge and more artistic capacity in the practioner than any other branch of engraving. A plate is prepared for etching by rubbing the burnished surface with willow charcoal and water. The charcoal leaves an infinite number of fine lines or scratches in the plate, which show the same appearance in the proof as a delicate wash of india ink, and serve to tone down the obtrusive whiteness of the paper. After using charcoal the plate is heated to a temperature sufficient to melt a composition of white wax, Burgundy pitch and asphaltum, technically called the etching ground, which is rubbed over the plate in a thin, even coat and allowed to harden. The ground is then smoked to a dull, deep black, over the flame of a wax taper. The artist now prepares his design on thin paper, tracing the outline with soft red chalk; he then places the design face to the smoked surface of the plate, and again traces the outline of the subject with a sharp point of ivory or wood, and on removing the paper the chalk lines are transferred to the wax ground, re-

versed. An instrument is now used called the etching needle, to score the lines through the wax and lay bare the surface of the copper. The pressure used is just sufficient to remove the etching ground and slightly scratch the surface of the metal beneath. The artist works stroke by stroke, much the same as when drawing with a pen, only in this case every mark shows white on a black ground, just the reverse of pen drawing, and the deepest shades show as patches of white. After the drawing is completed the back of the plate is covered with a varnish and immersed in a bath composed of equal parts of nitric acid and water, the copper is attacked in those parts laid bare by the etching needle, and after a sufficient depth of line is obtained for the lightest parts, those portions are stopped out with varnish, and the plate is again bitten until the darkest shades are obtained.

To print well from copper or steel plates requires great care. The press used consists of two great rollers, between which travels a solid flat plate, called the bed, on which rests the plate. The copper-plate is first heated until it is as hot as the hand can bear, then it is inked all over with a *dabber* and some force is used to drive the ink well into the lines; next the whole of the superfluous ink is removed with a coarse muslin rag, and the palm of the hand, and the copper margin of the plate cleansed very carefully with whitening; having marked the place of the plate on a sheet of zinc, the printer lays it on the zinc in its measured place, and over it spreads a sheet of damp paper; over this he places a number of thicknesses of cloth, and the whole is forced between the rollers of the press; the pressure forces the paper into the lines of the engraving, and, removing the ink, produces the picture. Usually the first hundred impressions of a choice engraving are printed upon india paper, and are some-

times signed with the name of the artist; in this case they are called "autograph proofs," and are much more costly than an ordinary impression. After the artist proofs are printed it is customary to cut the artist's name in the right hand lower corner of the plate, while the engraver's name occupies the left hand portion, bringing them, of course, in just the opposite position in the printed proof; then another series of proofs are struck off, and called "proofs before the letter." Finally the title of the plate is engraved, and then the ordinary series of the plate is printed.

Mr. JAMES KIMBALL communicated a paper on the "Journal of Rev. Daniel Shute, D.D., chaplain in the expedition to Canada in 1758."

Referred to the committee on publications.

Vice President F. W. PUTNAM spoke of the Agassiz Memorial Fund, and urged the necessity of aiding, even if in a small way, the promotion of its objects.

The subject was referred to the curators of the Department of Natural History.

Vice President PUTNAM presented the following paper :

NOTES ON THE MAMMALS OF PORTIONS OF KANSAS,  
COLORADO, WYOMING AND UTAH.

BY J. A. ALLEN.

THE following incomplete lists of the mammals of four quite widely separated localities in the Middle Province of North America are based on observations made by the writer while on a recent collecting tour to the Great Plains and the Rocky Mountains, for the Cambridge Museum of Comparative Zoology. Meeting everywhere with intelligent hunters, some of whom had spent many years in the vicinity of the localities I visited, I was able to obtain from them much val-

uable information in respect to the occurrence and relative abundance of the larger species, testing of course the accuracy of their accounts by the independent observations and reports of different observers, and by my own experience and general knowledge of the subject. Respecting some of the smaller rodents, and the insectivores generally, I could obtain no satisfactory information, and they are consequently omitted from the lists.

Every naturalist is of course aware of the difficulties that one meets with in seeking to learn something of the mammalian fauna of a locality, and how inadequate a few weeks' reconnoissance is for its satisfactory exploration. Owing to the nocturnal habits of some species and the reclusiveness of others, only a comparatively small proportion of the whole are readily observed or obtained, patience and strategy and much time being requisite for the discovery and capture of the others. While a few weeks of diligent collecting may be sufficient to afford one a tolerable idea of the character and variety of the bird life occurring at a particular season at a given locality, many months are necessary to give one an equal familiarity with its mammalian life. On the other hand, one can learn at second hand much more respecting mammals than birds, the species of the former being so much fewer and in the main so diverse with each other, but more especially because all the larger mammals are objects of special interest to the hunter and trapper, either for their furs, their flesh, or as enemies, and whose pursuit is attractive and meritorious in proportion to its dangers and difficulties. Hence not only is the traveling naturalist compelled to consult those skilled in woodcraft for much information he has not time himself otherwise to obtain, but he can do so with a certainty of results attainable in respect to scarcely any other class of animals.

The collection of mammals obtained on this expedition contains much valuable material for special investigation, including, as it does, large series of skeletons of nearly all the ruminants and of several of the rodents and carnivores. As the results obtained by the examination of this and other collections of the mammals of the West are reserved for a series of special papers already in preparation (including monographic revisions of the families *Leporidae* and *Sciuridae*), it has not been deemed advisable to make the following lists in any degree revisionary, the nomenclature adopted being essentially that of the author's previous papers.

## PART I.

*On the Mammals of Middle and Western Kansas.*

The observations which serve as the basis of the following list were made chiefly in the vicinity of Fort Hays, Kansas, in the summer of 1871, supplemented, however, by others made during two weeks spent in the field in northwestern Kansas during the following winter. All the larger and more common species are probably duly chronicled, while not a few of the rarer or more obscure species escaped notice, as I am unable to include in the list a single insectivore. The general character of the locality has been already indicated.\*

**FELIDÆ.**

**1. *Lynx rufus*.** "Wild Cat." Bay Lynx. Rather frequent. Occasionally met with on the prairies remote from timber.

**CANIDÆ.**

**2. *Canis lupus*.** Gray Wolf. "Buffalo Wolf." Formerly very abundant, but during the last few years their numbers have greatly diminished, thousands having been killed for their skins every winter by means of strychnine. Comparatively few now remain.

**3. *Canis latrans*.** Prairie Wolf. "Coyote." Still quite common, but far less so than they were a few years ago. While their dismal cries are still familiar sounds on the plains of the western part of the state, especially in winter, hunters with their destructive poisons have reduced their numbers till comparatively few remain.

**4. *Vulpes velox*.** Kit Fox. "Swift." These graceful little animals are still more or less abundant.

**BASSARIDÆ.**

**5. *Bassaris astuta*.** Texas Civet Cat. Of occasional occurrence. Although I did not meet with it, an animal was described to me by different persons that so accurately agrees with the Texas civet cat that I have no doubt of its being this species. It is apparently rather rare, however, as none of my informants had seen more than two or three individuals in the region under consideration. The northern boundary of Kansas probably forms its ordinary northern limit of distribution on the plains.

---

\* See Bull. Mus. Com. Zool., vol. iii, pp. 122, 123. July, 1872.



**MUSTELIDÆ.**

**6. Mephitis mephitis.** Common Skunk. Abundant. One of the most common of the smaller mammalia. The few specimens I had an opportunity of examining presented the usual wide differences of color seen in those from other parts of the country.

**7. Lutra Canadensis.** American Otter. Occasional along the streams.

**8. Taxidea Americana.** Badger. Not frequent.

Other species of this family that probably occur here are *Putorius ermineus*, *P. pusillus*, *P. lutreolus* and *Mephitis bicolor*.

**URSIDÆ.**

**9. Ursus arctos, var. Americanus.** Black Bear. Said to be more or less common along the streams. We observed its tracks in June along the Saline.

**PROCYONIDÆ.**

**10. Procyon lotor.** Raccoon. Common along the streams, where we frequently observed its tracks.

**BOVIDÆ.**

**11. Bison Americanus.** American Bison. "Buffalo." Abundant.

The great "buffalo country" of the United States is now mainly restricted to Western Kansas and Eastern Colorado, between the Arkansas and Platte Rivers,—a region extending about two hundred miles in a north and south direction and nearly three hundred miles in an easterly and westerly direction, over much of which territory they still range in countless hordes. They are, however, partially migratory, moving eastward in summer and westward in winter. In the northern part of the state their summer range, in 1871, extended eastward from the western boundary of the state to the vicinity of Fort Harker. In winter their eastern limit scarcely extended east of Ellis, on the Kansas Pacific Railway, while they ranged westward into Eastern Colorado. These movements of the buffalo are evidently influenced by the climate, the prairies of Kansas west of Ellis being rarely long covered by snow, while to the eastward of this point the snow is much more constant, and the country hence much less favorable for the existence of the buffalo there in winter than it is more to the westward. Every year, however, their range is becoming more circumscribed, owing to the rapid reduction of their numbers by hunters, and, in consequence also of constant persecution, their movements are

much more uncertain than formerly. Although the number of buffalo to be met with in this portion of Kansas is still almost beyond conception, the country sometimes seeming alive with them as far as the eye can reach, their diminution is rapid, and at the present rate of destruction a few years will suffice to exterminate them wholly. Since the completion of the Kansas Pacific Railway, some four years since, this line of communication with the east has not only opened up an unlimited demand for the products of the buffalo, but has afforded to the hunters a most convenient base from which to carry on their operations. The result is already apparent in the diminished and demoralized state of the herds in northwestern Kansas, which already so much affects the success of the hunters that they have of late in great part abandoned this portion of the country for the more promising field newly opened up to them along the line of the Atchison, Topeka and Santa Fé Railroad.

Aside from the tens of thousands killed in winter for shipment in a frozen state to the eastern markets, other thousands are killed merely for their hides, which scarcely repay the labor of gathering, their carcasses being left to decay on the ground where they are killed. Hundreds, and probably thousands, are also killed in mere wantonness, or to gratify the ambition of eastern sportsmen and tourists. The buffalos are thus perpetually harassed, and driven from place to place throughout the year. All ages are alike destroyed, those too old to be of any value for their flesh being slaughtered for their hides, and the younger animals for their "saddles." The younger animals, and particularly the young cows, are especially sought for their meat. The latter being mostly with young, two animals are thus destroyed instead of one, which, with the destruction of yearlings and two- and three-year-olds, greatly checks the natural increase of the herds, and greatly hastens their extermination. Unless vigorous government interference shall put a check upon this wholesale, shortsighted slaughter, much of which is really needless, the buffalo will soon be known here only as a thing of the past, as it now is in the vast region east of the Mississippi, where this animal once lived in countless numbers.

Respecting the whole number now annually killed in Kansas, it is almost impossible to obtain reliable statistics. Through the kindness of Mr. W. T. Bowen, General Superintendent of the Kansas Pacific Railway, I have learned that the meat and hides shipped to eastern cities over this road during the year 1871 represented about twenty thousand individuals. In the fall of 1872 forty-three thousand hides are reported to have been shipped from Fort Dodge alone, besides about a million and a half pounds of meat. The grand total killed in the season of 1872-3, in the immediate vicinity of Fort Dodge, is stated to be not less than *one hundred thousand!*

**ANTILOCAPRIDÆ.**

**12. Antilocapra Americana.** Pronghorn. "Antelope." Common in summer as far east as the middle of the state, and formerly ranged much further eastward. Not observed in winter much to the eastward of the Colorado boundary, at this season they mostly abandoning this portion of the state for the milder portions of the country to the southward and westward. We observed them in June about Fort Hays in small parties of six to a dozen. They were, however, exceedingly wary and difficult to approach. Fawns a few days old were frequently brought in to the Post during the first two weeks of June, but they usually soon died, even under the most careful treatment. The fawns, even when but a few days old, were often more wary and even fleetier than their dams, frequently taking flight first and leading the herd.

The fawns, when taken very young and without injury, are easily reared, and become thoroughly domesticated, making very graceful and interesting pets. The Indian method of capturing them by creeping up to them stealthily when they are asleep and throwing a blanket over them is the most successful, as they are then taken without experiencing an excessive shock of fright or bodily injury. When run down with horses, the common way of taking them, they generally die in three or four weeks, from the effects of the chase and the fright, not more than one in eight or ten, it is said, surviving.

Although tolerably frequent in northwestern Kansas in summer, they are far less numerous here than in eastern Colorado, or on the plains of southern Wyoming.

**CERVIDÆ.**

**13. Cervus Canadensis.** Elk. More or less common near the streams, especially on Paradise Creek, and occurs as far east at least as Fort Harker.

**14. Cervus macrotis.** Mule Deer. "Blacktail." More or less common along the wooded portions of the streams, especially on the Smoky and the Paradise.

**VESPERTILIONIDÆ.**

Bats were frequently observed flying about at Fort Hays, but as none were obtained the species were not determined.

**MURIDÆ.**

**15. Mus musculus.** Common Mouse. Common in the houses at Hays City.

**16. *Mus decumanus*.** Brown Rat. Abundant, and a great pest about the government storehouses at Fort Hays.

**17. *Hesperomys leucopus*, var. *sonoriensis*** (Coues MS). Whitefooted Mouse. A single specimen was picked up dead in the yard at our quarters at Fort Hays. Probably more or less common. (Also obtained at Cheyenne.)

**18. *Neotoma cinerea*.** Wood Rat. Apparently common along the timbered portions of the streams. A complete skeleton was found on the banks of Big Creek, near Fort Hays.

**19. *Fiber zibethicus*.** Muskrat. Occasional along the streams.

#### GEOMYIDÆ.

**20. *Geomys*?** A gopher (some species of *Geomys* or *Thomomys*) was more or less common in the moist bottom lands near the streams, but none were captured.

#### CASTORIDÆ.

**21. *Castor fiber*.** Beaver. Still quite frequent along the timbered portions of the streams.

#### SCIURIDÆ.

**22. *Sciurus cinereus*, var. *Ludovicianus*.** Western Fox Squirrel. Said to be common on some of the wooded streams, but we did not meet with it.

**23. *Spermophilus tridecem-lineatus*.** Striped Prairie Squirrel. More or less common generally, but most numerous near the streams and damp hollows.

**24. *Cynomys Ludovicianus*.** Prairie Dog. Exceedingly abundant, their villages frequently covering areas of several square miles in extent, and embracing hundreds of families. Occasionally a few pairs of burrowing owls (*Speotyto cunicularia*, var. *hypogæa*) inhabited the "dog-towns." Rattlesnakes are occasional, and in one or two instances were seen in holes about the mouths of which were fresh tracks of the dogs. The theory that these three animals, the dogs, the snakes and the owls, inhabit the same hole at the same time, receives little credit among people thoroughly conversant with their habits, and the idea that they live harmoniously together as "happy families" finds still fewer supporters. The owls appear to occupy only the abandoned holes, and probably never habitually live in the same holes with the dogs. The owls are far from abundant, as often several large villages may be passed in a day's ride without meeting with a single owl. The owls may, to some extent, prey upon the



young dogs, but the stomachs of those dissected were almost invariably filled with grasshoppers, and the débris found about their holes indicated that these and other insects, with a large kind of crawfish, constitute at this season of the year their chief food. That the rattlesnakes prey upon the dogs is sufficiently established by the frequent capture of the snakes with young dogs in their stomachs. I have myself taken three young dogs from the stomach of a single snake. The entrances to most of the holes in which the snakes were seen were worn smooth by the friction of the snake's body in passing in and out, they apparently appropriating certain holes which they occupy permanently; but they doubtless enter holes occupied by the dogs. When this occurs the dogs not only immediately abandon the holes, but are said to fill them up, and thus fasten the snake in. It certainly happens that the dogs do thus frequently abandon and solidly fill the entrances to their burrows, as I have myself observed, and I do not doubt that what the old "plainsmen" thus affirm is correct.

The dogs usually select a level tract for the site of their towns, and seem to a great extent to avoid the ridges and the more broken parts of the country. In regard to their habits, or voice, there is little or nothing to suggest the name of "dog," as of course there is nothing in their structure to imply such affinities as the name "Prairie Dog" might be supposed to indicate. They are simply large ground squirrels or marmots, and their voice is quite like the so-called barking of various kinds of *Sciurus*, varied at times with a shrill whistle, not unlike that of some of the true marmots. We found them generally exceedingly shy, retreating to their holes almost invariably long before the intruder gets within sure rifle range, whether on foot, mounted, or in a wagon. They behaved differently, however, on different days and at different localities, sometimes permitting a near approach. They usually scamper to their holes at the first approach of danger, but as soon as they reach them they seem conscious of safety. From the entrance of their burrows they will salute the object of their alarm, at times almost incessantly, with their impertinent, squirrel-like bark, either seated upright on their haunches, or stretched at full length across the opening. Their combined air of confidence and impudence is at such times often highly amusing; and, thus sure of a hasty retreat from danger, they will often allow a person to approach within a few yards of them, but if approached too closely suddenly drop into their holes, from which their subdued, twittering, half-whistling bark can be faintly heard after they have disappeared. Being excessively tenacious of life, they are difficult to procure, because even if mortally wounded they almost invariably fall into their holes. If shot through the head, or through the heart, unless knocked backwards away from their holes (which not often hap-



pens) they are then rarely obtainable, and even when thus knocked over by the force of the missile, they will often wriggle into their holes before they can be secured. Their holes usually descending nearly vertically for several feet, they commonly slip down out of reach, though killed instantly. Occasionally, however, the holes slope sufficiently to allow them to lodge a few feet from the entrance, when they may be reached by means of a common gun-rod, and drawn out by twisting the wormer of the rod into their tough hides. In this way Mr. Bennett and myself one day secured seven in the space of a couple of hours at Fort Hays, though we had been many times assured it would be impossible to get them by shooting them. But this was unusual success, as ordinarily not more than one in six of those killed could be secured.

The prairie dogs are easily tamed, and make amusing, though at times rather mischievous, pets. A variety of food seems to please their palates, and whenever they can get at some delicacy in the pantry or storehouse they are sure to carry away large quantities. They also have a propensity to carry away articles for which they have no use. The mode of capturing them is usually to "drown them out" by filling their holes with water. This method is always laborious, requiring often many barrels of water, which has to be transported with teams, and is not always successful, owing to the extensive ramifications or intercommunication of their burrows. Occasionally advantage is taken of temporary pools of water left standing after heavy rains, the water being conducted into the holes by means of trenches. A more effective and ingenious way, however, has of late been adopted. This consists in placing a barrel, from which both heads have been removed, over the entrance of an inhabited burrow, and partially filling it with straw. When the animal comes out he burrows up through the straw, which he unwittingly presses so compactly behind him that he cannot descend through it, and thus remains a prisoner in the barrel above the straw.

A gentleman whom we met at Cheyenne, by carefully studying the habits of the prairie-dog, had discovered a method of capturing these animals alive by the use of water with comparatively little trouble. Their burrows usually have two entrances, one of which descends almost vertically and the other by a considerable slope. Often a single bucket of water poured suddenly into the vertical end of the hole, causes the animal to rush out in great surprise at the other entrance, where it is captured in a bag held over the hole. When the railroad first reached Cheyenne, and for some time after, these animals were in great demand by the passengers as objects of curiosity, and sold readily for ten dollars a pair. The prairie dogs being very numerous on the plains about Cheyenne, the gentleman in ques-

tion soon realized quite a large sum from the sale of these little animals, which he captured in the manner above described.

Many of the burrows of prairie dogs have a raised, funnel-shaped entrance, varying in height from a few inches to a foot or more. These have been called their "forts," and the dog sitting in the entrance defiantly barking has been compared to a sentinel on guard. The object, however, of these raised entrances is sufficiently obvious, these embankments being formed to keep out the water, which in violent rains soon covers the whole surface of the ground. Often the holes are situated in very slight depressions, and would hence be filled by the drainage into them, were they not thus protected; and under these circumstances the embankments are generally higher than when the holes are in this respect more favorably situated. They are formed of earth scraped up from the surface outside the hole, and are symmetrical in shape, very hard and smooth. These embankments, or "forts," are seen in greatest perfection when the site of the "village" is on low or very flat land; they are always kept in excellent repair as long as the burrows are inhabited. In the excavation of their holes the earth is all disposed of without bringing it to the surface.

In winter, during fine weather, the prairie dog villages present as active and populous an appearance as in summer, the dogs only retiring for a few days at a time during the continuance of the severest weather.

#### HYSTRICIDÆ.

**25. Erethizon dorsatus**, var. **epizanthus**. Porcupine. A few are reported still to occur on the Paradise. Formerly more or less frequent on all the wooded streams.

#### LEPORIDÆ.

**26. Lepus sylvaticus**. Gray Rabbit. Abundant, not only near the streams but quite distant from timber. Many were seen about the military post at Fort Hays, making their homes in the piles of wood in the woodyard at the post.

**27. Lepus campestris**. Prairie Hare. A few seen in summer on the plains north of Fort Hays, and in winter from the western border of the state as far east as Bunker Hill Station. They were quite often met with in December and January near the northwestern border of the state. About half of those obtained during these months still retained their summer color.

**28. Lepus callois**. Jackass Rabbit. We obtained this species at Cheyenne, and I have good authority for its occurrence in Eastern Colorado and the western part of Kansas.

[To be continued.]

# BULLETIN

OF THE

## ESSEX INSTITUTE.

---

---

VOL. 6.

SALEM, MASS., APRIL, 1874.

No. 4.

One Dollar a Year in Advance. 10 Cents a Single Copy.

---

---

REGULAR MEETING, MONDAY, MARCH 16, 1874.

NOTES ON THE MAMMALS OF PORTIONS OF KANSAS, COLORADO, WYOMING AND UTAH.—BY J. A. ALLEN.

[ *Continued.* ]

PART II.

*On the Mammals of Park County, Colorado.*

THE following notes are based on observations and inquiries made during four weeks spent in and about South Park, Colorado, in the summer of 1871. They refer not only to the Park itself, but also embrace a part of the Snowy Range. A week was spent in the vicinity of Montgomery, near the timber line, from which point excursions were made to the snow region. A few facts were also obtained from miners and hunters.

### FELIDÆ.

**1. *Felis concolor.*** Panther. Not uncommon. Well known under the name of Mountain Lion. Its cry was once heard near our camp at Montgomery.

**2. *Lynx Canadensis.*** Represented as common. Saw skins of this species in the possession of hunters, taken in the vicinity of Mount Lincoln.

**3. *Lynx rufus.*** "Wild Cat." Not uncommon.

ESSEX INST. BULLETIN.

vi

5

## CANIDÆ.

**4. *Canis lupus*.** Gray Wolf. Formerly abundant, but now comparatively scarce.

**5. *Canis latrans*.** Prairie Wolf. Formerly exceedingly numerous, but now greatly reduced in numbers, though still more or less troublesome.

**6. *Vulpes vulgaris*, var. *fulvus*.** Common Fox. Common. The color is generally grayer than in the eastern form, and the "black" and "cross" varieties are more frequent. In a series of some thirty-five or forty skins, taken in the winter at Montgomery, which I had an opportunity of examining, none were as brightly colored as the red fox of the Eastern States. One was entirely black, and nearly half of the others were more or less well-marked "cross" foxes, some of them typically so, but they graded almost insensibly into the ordinary type. The *V. macrourus* seems to represent only a common phase of the "cross" fox, a type so much more common in the western and elevated parts of the continent than at the eastward.

## MUSTELIDÆ.

**7. *Mustela martes*.** Marten. Common.

**8. *Mustela Pennanti*.** Fisher. Said to be more or less common.

**9. *Putorius ermineus*.** Ermine Weasel. Common.

**10. *Putorius lutreolus*, var. *vison*.** Mink. Common along the streams up to about ten thousand feet, above which I could not obtain evidence of its occurrence.

**11. *Gulo luscus*.** Wolverine. Said to be not uncommon. Saw the skin of one taken near Montgomery.

**12. *Mephitis mephitis*.** Common Skunk. Common, ranging to above timber line.

**13. *Taxidea Americana*.** Badger. Common in South Park.

## URSIDÆ.

**14. *Ursus arctos*, var.** Bear. Common. Both the black and cinnamon varieties occur in about equal numbers. The cinnamon variety is represented as averaging the larger, and as being the more dangerous to encounter. Both vary greatly in color and size, and appear evidently to intergrade. The cinnamon is often quite gray, when it often passes for the grizzly, though not generally regarded as the "true" grizzly.

## BOVIDÆ.

**15. *Bison Americanus*.** American Bison. A few still remain in the southern portion of South Park, chiefly near Buffalo Springs. A small band came up the valley of the Platte from the



eastward into the Park in June, 1871. They moved rapidly, and a calf accompanying the herd becoming fatigued and lagging behind was captured. This I saw in the following August, at a ranch fifteen miles below Fairplay. It was apparently some ten or twelve weeks old, and had already begun to turn dark colored. As recently as 1862 the buffalo are said to have been abundant throughout South Park, where their skulls and other bones are still everywhere frequently met with, as well as thence eastward throughout the smaller parks and mountain valleys. It seems also to have wandered in summer to above timber line on the Snowy Range, to feed on the grassy slopes that occur above the limit of trees. We found its bleached skulls in the Valley of the Platte, up to the extremest sources of the stream, and Mr. Bennett met with them on Mt. Lincoln, far above timber line.

The buffalo of the Parks and mountain valleys is said to differ from the buffalo of the plains, and is hence generally distinguished as the "Bison," or "Mountain Bison." Although this opinion is widely entertained, the reports respecting the differences that distinguish these two varieties are extremely varied and conflicting. Persons claiming familiarity with both hold opposite opinions as to their diversity, some failing to perceive any essential differences, while others maintain that they differ so widely that they must be different species. I found, however, that those whose experience with both seemed to render them the most competent to judge were those who placed the lowest estimate on their differences, while those who magnified them most belonged to a class more or less prone to exaggeration in matters of even trivial importance. The alleged differences varied with almost every individual whose opinion in the matter was consulted. The mountain buffalo is, however, generally regarded as smaller than the buffalo of the plains, slenderer behind, but provided with a larger hump, and with darker, finer and more abundant wool. I found, however, that the skulls met with in South Park, and in the valley of the South Platte above Fairplay, averaged larger, by actual measurement, than those of the plains, with stouter and considerably longer and more spreading horns. The "mountain bison" is said never to mix with the "buffalo" of the plains, the former being confined exclusively to the mountains, and the latter to the plains. One of my informants assured me that the mountain bison occurs in New Mexico, and that the Mexicans and Indians recognize it as different from the buffalo of the plains, with which they are also familiar, and that they call it by a different name.

**16. *Ovis montana*.** Rocky Mountain Sheep. Occasional, but found chiefly on or near the Snowy Range, retiring in summer to the most inaccessible parts of the mountains. Fresh "signs" were



noticed by Mr. Bennett on one of the spurs of Mt. Lincoln, while here and there a weathered skull attested their former greater frequency.

#### ANTILOCAPRIDÆ.

**17. Antilocapra Americana.** Pronghorn. "Antelope." Not uncommon in South Park.

#### CERVIDÆ.

**18. Cervus Canadensis.** Elk. Becoming rare; formerly common. In summer keeps near the upper limit of timber, descending occasionally into the valleys in winter.

**19. Cervus macrotis.** Mule Deer. More or less common, but in summer is said to be most frequent near the timber line, though occurring more or less generally throughout the mountains.

#### VESPERTILIONIDÆ.

**20. Lasiurus?** A small bat was a few times seen flying about camp soon after sunset, which was probably *Lasiurus Noveboracensis*.

#### MURIDÆ.

**21. Neotoma cinereus.** Wood Rat. Common. It freely enters houses and storerooms in quest of food, and is sometimes extremely troublesome.

**22. Hesperomys leucopus**, var. **sonoriensis** (Coues Ms.). White-footed Mouse. A species of *Hesperomys*, probably *H. leucopus*, var. *sonoriensis* is quite common.

**23. Arvicola**——? Field Mouse. An undetermined species of short-tailed field mouse, undoubtedly an *Arvicola*, is said to be more or less frequent.

**24. Fiber zibethicus.** Muskrat. More or less common at favorable localities.

#### GEOMYIDÆ.

**25. Thomomys rufescens.** Fort Union Gopher. Common almost everywhere, in moderately dry soil. Observed their burrows on the Snowy Range, nearly up to the limit of vegetation.

#### CASTORIDÆ.

**26. Castor fiber.** Beaver. Quite common on the South Platte and its tributaries. Saw their last dam on the Platte a few miles below Montgomery, above which point they are said not to occur.

**SCIURIDÆ.**

**27. *Sciurus Hudsonius*, var. *Fremonti*.** Fremont's Squirrel. Not abundant.

**28. *Tamias lateralis*.** Say's Striped Squirrel. Common. Ranges up to timber line.

**29. *Tamias quadrivittatus*.** Missouri Striped Squirrel. Abundant from about seven thousand feet up to the extreme limit of vegetation.

**30. *Spermophilus tridecem-lineatus*.** Striped Prairie Squirrel. Everywhere common, especially in South Park.

**31. *Cynomys Gunnisoni*.** Gunnison's Prairie Dog. Common in South Park, and thence eastward to the plains, where it is immediately replaced by *Cynomys Ludovicianus*.

**32. *Arctomys flaviventer*.** Yellow-footed Marmot. Abundant about Montgomery, ranging from the valley of the Platte up to the limit of vegetation. Most numerous at and above the timber-line, where often quite a number were visible at the same moment, basking on the rocks. Specimens entirely black are of frequent occurrence. Their sharp call, in character somewhat between a clear whistle and a short, sharp bark, well entitle them to the name of "whistling marmot." They seem to be almost restricted to the alpine district, none being met with below ten thousand feet.

**HYSTRICIDÆ.**

**33. *Erethizon dorsatus*, var. *epizanthus*.** Porcupine. Common, ranging from the foot-hills upward to the timber line.

**LAGOMYIDÆ.**

**34. *Lagomys princeps*.** Little Chief Hare. "Cony." Very abundant on the Snowy Range about the sources of the Platte. Are first met with but a few hundred feet below the timber line, ranging thence upward to the limit of vegetation. Mr. Bennett observed them on the top of Mt. Lincoln, and we often found them above timber line, in places almost entirely destitute of vegetation. Their favorite haunts are taluses, and are seen almost exclusively among the bare loose rocks that cover so much of the higher slopes. They are very unsuspicious, allowing a near approach. When seated among the rocks, or when running about among them, they make known their presence by the frequent utterance of their feeble call note, which may sometimes be heard from a dozen individuals at once. They were often very abundant where there was scarcely any vegeta-

tion within a hundred yards. In other instances their warrens were met with in the upper edge of the timber, where grass and small plants were abundant, of which they had carried large quantities into the rocks, in some places filling almost every crevice for many yards around. As they crept slowly about over and among the loose stones, they looked like large, tailless rats. Their note is a feeble squeak, and very deceptive as to distances, seeming to be far away, when really but a few feet distant.

### LEPORIDÆ.

**35. *Lepus campestris*.** Prairie Hare. Common in the parks.

**36. *Lepus sylvaticus*, var. *artemisia*.** Sage Rabbit. Common.

**37. *Lepus Bairdii*.** Another species, said to be white in winter and confined to the timber, is also mentioned as common; doubtless the *Lepus Bairdii*, the common alpine form of our *L. Americanus* of the east.

### PART III.

#### *On the Mammals of Carbon Co., Wyoming Territory.*

The following list is based on observations made and information obtained during a residence of about two months in the vicinity of Percy, a station on the Union Pacific Railroad, about six miles north of the old Fort Halleck, in southwestern Wyoming. My constant intercourse with hunters of long experience in this section of the country enabled me to gather much information I could not otherwise have obtained without a long residence here. Specimens of nearly all the species mentioned below were either obtained by ourselves or purchased in a fresh state of the hunters. The area to which this list refers embraces a portion of the Medicine Bow range of mountains, Elk Mountain being one of the prominent landmarks of the locality, as well as the adjoining "sage plains" which form so prominent a feature of this section of the country.

### FELIDÆ.

**1. *Felis concolor*.** Panther. "Mountain Lion." More or less common in the timber of the Medicine Bow Range, as it is also throughout the timbered portions of the Rocky Mountains.

**2. *Lynx Canadensis*.** Canada Lynx. Frequent in the mountains, and occasionally met with on the plains.

**3. *Lynx rufus*.** Bay Lynx. Not common.

**CANIDÆ.**

**4. *Canis lupus*.** Gray Wolf. The "Mountain Wolf" and "Timber Wolf" of the hunters. Abundant in the timber.

**5. *Canis latrans*.** Prairie Wolf. "Coyote." Abundant on the plains and prairies.

**6. *Vulpes vulgaris*, var. *fulvus et macrourus*.** Fox. Common.

**MUSTELIDÆ.**

**7. *Mustela martes*.** Marten. Not common.

**8. *Putorius ermineus*.** Ermine Weasel. Abundant.

**9. *Putorius lutreolus*, var. *vison*.** Mink. Common.

**10. *Gulo luscus*.** Wolverine. "Carcajou." Rather common, and reported to be quite numerous at particular localities.

**11. *Mephitis mephitis*.** Common Skunk. Abundant.

**12. *Taxidea Americana*.** Badger. Common.

The Fisher (*Mustela Pennanti*) does not appear to occur in this immediate region.

**URSIDÆ.**

**13. *Ursus arctos*, var.** Bear. The black, brown and cinnamon varieties are all frequent. The hunters not only recognize them as distinct and permanent varieties, but in addition to these, some of the more observant of them distinguish subvarieties, based on the shape of the head, the general form, size or color. Some of those with whom I conversed made three varieties each of the brown and cinnamon bears, as the "large," the "small," and the "real" brown or cinnamon bear, respectively. The black form is represented as being similarly variable in size. From the reports of hunters, there seem to be endless varieties, especially in respect to size and color, without a very sharp demarcation of either varieties or races.

The Raccoon (*Procyon lotor*) was unknown to the hunters as an inhabitant of this region.

**BOVIDÆ.**

The Buffalo (*Bison Americanus*) existed here abundantly not many years since, but is not now found south of the Black Hills, or nearer than sixty to eighty miles. But their skulls and skeletons, partially decomposed, are still common.

**14. *Ovis montana*.** Rocky Mountain Sheep. "Big Horn." Small herds are still more or less frequent in the mountains, but they are materially decreasing in numbers every year. They now occur only at distant points and in the most inaccessible places, and the professional hunters start in pursuit of them with far less confidence



of success each year. Although very wary and difficult to approach, the "professional," through an intimate knowledge of their habits and the skilful use of breechloading rifles, often succeeds in destroying a whole band when once he has satisfactorily chosen his point of attack. Our hunters brought us in thirteen obtained on a single excursion for them, and killed from a band of fifteen. The other two were killed, but could not be got at.

#### ANTILOCAPRIDÆ.

**15. *Antilocapra Americana*.** Pronghorn. Antelope. Abundant. Found everywhere on the plains in large herds. Their extermination, however, seems to be rapidly approaching, from the rate at which they are at present slaughtered. Thousands are killed within the radius of a few miles, every year, for the eastern and western markets, a large proportion of those killed here being sent to Utah, Nevada and California. The best of the antelope season occurs in October and November, the elk and deer being the more profitable game later in the season. The hunters select the most favorable points along the railroad for their headquarters, and for weeks together the more successful of them take from five to eight or ten saddles each per day, for which they find ready sale. One party whose camp I visited averaged over fifteen dollars a day each, during the best of the season, from the sale of their antelope saddles. Probably the antelopes occur at present in no greater numbers anywhere than in southern, and especially in southwestern, Wyoming, where bands of hundreds are often visible, and the smaller herds are innumerable. They are, however, already perceptibly decreasing in numbers in consequence of this wholesale slaughter.

#### CERVIDÆ.

**16. *Cervus Canadensis*.** Elk. Abundant, particularly about Elk Mountain, and neighboring portions of the Medicine Bow Range.

**17. *Cervus macrotis*.** Mule Deer. Abundant.

**18. *Cervus leucurus*.** White-tailed Deer. Not common, and appears not to associate generally with the *C. macrotis*, which is here far more numerously represented. We obtained a single specimen from our hunters, who reported it to be the only example they had met with for many months.

#### JACULIDÆ.

**19. *Jaculus Hudsonius*.** Jumping Mouse. Said to be common.



**MURIDÆ.**

**20. *Mus musculus*.** House Mouse. Abundant in the houses, from which it drives the native vesper mice.

**21. *Hesperomys leucopus*, var. *sonoriensis*** Coues' MS. White-footed Mouse. Abundant.

**22. *Neotoma cinerea*.** Wood Rat. "Mountain Rat." Common.

**23. *Fiber zibethicus*.** Muskrat. Common.

**GEOMYIDÆ.**

**24. *Thomomys rufescens*.** Fort Union Gopher. Common.

**CASTORIDÆ.**

**25. *Castor fiber*.** Beaver. Abundant.

**SCIURIDÆ.**

**26. *Tamias lateralis*.** (*Spermophilus lateralis* Baird.) Say's Striped Squirrel. Said to be common.

**27. *Tamias quadrivittatus*.** Missouri Striped Squirrel. Abundant.

**28. *Spermophilus Richardsoni*.** Tawny Gopher.

**HYSTRICIDÆ.**

**29. *Erethizon dorsatus*, var. *epizanthus*.** Porcupine. Common in the timber.

**LEPORIDÆ.**

**30. *Lepus campestris*.** Prairie Hare. More or less common everywhere, but exceedingly abundant at certain localities.

**31. *Lepus sylvaticus*, var. *artemisia*.** Sage Rabbit. Very numerous everywhere.

**32. *Lepus Americanus*, var. *Bairdii*.** A rabbit which is white in winter occurs in the timber in considerable abundance, and is doubtless the *Lepus Bairdii* Hayden.

**PART IV.***On the Mammals of Great Salt Lake Valley, Utah.*

The following notes are based mainly on information kindly communicated to me by Mr. E. D. Mecham, of Ogden, Utah. Mr. Mecham was formerly an agent of the American Fur Company, and has spent twenty years as a trapper, hunter and guide in the Rocky Mountains. His expeditions have extended from the Saskatchewan on the north

to Texas and Mexico on the south, and from the Missouri River to the Sierra Nevada Mountains. Not only are most of the notes respecting the relative abundance of the species of the following list given on his authority, but I have thought it worth while to incorporate also some general facts relative to their range, which he has had the kindness to communicate to me. The list proper refers more directly to the northern portion of the Great Salt Lake Basin, and more especially to the immediate vicinity of Ogden. The notes hence refer in part to the neighboring portions of the Wahsatch Range as well as to the valley itself.

#### FELIDÆ.

**1. *Felis concolor*.** Not common, but quite generally distributed.

**2. *Lynx Canadensis*.** Canada Lynx. "Bull Cat." Common in the mountains as far south as Southern Utah.

**3. *Lynx rufus*.** Bay Lynx. Common, but chiefly confined to the mountains.

#### CANIDÆ.

**4. *Canis lupus*.** Gray Wolf. Common.

Respecting the color varieties of the Gray Wolf and their distribution, Mr. Meham's observations are as follows: The gray wolves occur everywhere. The black variety he had never met with south of the Salmon River, nor had he seen any skins obtained south of that point, but to the northward this is the most prevalent color. The red wolf he had met with only in Texas and the adjoining plains. The white wolf he had not found south of northern Utah, except to the eastward of the main chain of the Rocky Mountains, where it occurs as far south as Texas. The white wolves he considered the largest, the black the next in size, the gray being generally a little smaller.

**5. *Canis latrans*.** Prairie Wolf. More or less common throughout the plains and deserts of the interior.

**6. *Vulpes vulgaris*, var. *macroura*.** Fox. Common, running into the usual varieties. The red fox, according to Mr. Meham, is much less plentiful now than formerly. The "silver-gray," "cross," and "black" varieties prevail to the northward, but are rarely met with in the Great Salt Lake Valley. These are rather larger than the ordinary red fox, and their fur is finer and more plentiful. Among these varieties is of course included the so-called *V. macroura*.

#### MUSTELIDÆ.

**7. *Putorius ermineus*.** Ermine Weasel. Common.

**8. *Putorius lutreolus*, var. *vison*.** Mink. Common in Salt Lake Valley, and in the adjoining mountains along all the

streams. Has not been met with by Mr. Mecham south of the Arkansas. Respecting the fur, he says it is not more than one-third as thick at the south as it is far north, where it is also nearly jet black in color, while at the extreme south it is nearly roan.

**9. *Gulo luscus*.** Wolverine. Not common. Obtained from Mr. Mecham a specimen killed by him near Ogden, in June, 1871.

**10. *Lutra Canadensis*.** Otter. More or less frequent in Salt Lake Valley, and in the adjoining mountains.

**11. *Mephitis mephitis*.** Common Skunk. Common in Salt Lake Valley and throughout the plains and mountains generally.

**12. *Mephitis bicolor*.** Striped Skunk. Mr. Mecham gives its northern limit as about one hundred miles south of Ogden.

**13. *Taxidea Americana*.** Badger. Of common occurrence everywhere, as well in the mountains as on the plains.

#### PROCYONIDÆ.

**14. *Procyon lotor*.** Raccoon. Mr. Mecham gives it as rare in the mountains bordering the valley, but was not aware of its occurrence in the valley itself.

#### URSIDÆ.

**15. *Ursus arctos*.** Bear. Common in the mountains everywhere, in its principal varieties, as the black, brown, cinnamon and grizzly. In common with most hunters, he regards these forms as distinct species. The cinnamon bear he gives as the smallest, with an average weight of one hundred to one hundred and fifty pounds. The brown bear is next in size, the black third in size, and the grizzly the largest. Has killed grizzlies weighing fourteen hundred pounds. Black bears sometimes weigh four hundred pounds, but their more common weight ranges from two hundred to three hundred. At a menagerie in Salt Lake City I had an opportunity of observing alive and side by side specimens of the black, brown and cinnamon varieties. The only essential difference seemed that of color, and this is slight between the so-called brown and cinnamon varieties. The maximum differences in physiognomy and proportions were between two specimens of the "brown" bears, in which the length of the nose and the facial expression generally was markedly different.

#### BOVIDÆ.

The buffalo (*Bison Americanus*) appears to have been abundant at some remote time in the Great Salt Lake Valley. Fragments of their skulls are still here and there visible, but unless partially buried in the marshes they have crumbled and nearly disappeared. I met with

several well preserved skulls on the marshes just north of Salt Lake City, which had been exposed in throwing up the earth for the railroad bed. It is stated that as late as 1836, large numbers of buffalo existed in this valley, but that a winter of remarkable severity immediately following, when the snow is said to have fallen to an average depth of ten feet, nearly exterminated them, and that the few that survived soon after disappeared. They seem also to have formerly extended much to the westward of the Great Salt Lake Valley, Mr. Mecham assuring me that he has not only seen their skulls bleaching on the plains to the westward, but also on the eastern slope of the Sierra Nevada Mountains, on the so-called Hastings trail. I have also received substantially the same report from others, these accounts being wholly independent and from persons unknown to each other. They have, however, scarcely been seen west of the Green River for thirty years.

Mr. Mecham, alluding to his experience with the buffalo, says he saw "millions" of them on the Laramie Plains in 1846. When the emigrants began to cross these plains they slaughtered the buffalo recklessly, killing thousands for which they had no use. This wholesale butchery alarmed the Indians for the fate of these, to them, indispensable animals, and to save them from destruction and perhaps to annoy the whites, they drove them away from the regular emigrant trail, endeavoring to keep them as much as possible out of the reach of the emigrants. But this precaution seems to have availed little, as they continued to decrease rapidly in numbers. A few still straggle to the northern edge of these plains, from their range farther north, but over vast areas in Wyoming and Nebraska, where twenty to twenty-five years ago they existed in abundance, they have now become wholly extinct.

**16. *Ovis montana*.** Rocky Mountain Sheep. Found here and there in the Wahsatch Range, but are rapidly decreasing in numbers.

The Rocky Mountain Goat (*Aplocerus montanus*) occurs about two hundred miles north of Ogden, whence specimens have been received at the Museum of Comparative Zoology, collected by Mr. Mecham. This is the most southerly point of their occurrence known to Mr. Mecham.

#### ANTILOCAPRIDÆ.

**17. *Antilocapra Americana*.** Pronghorn. "Antelope." Occurs about forty miles west of Ogden, and was formerly more or less numerous throughout the Valley. Captain Stansbury, in his *Expedition to the Great Salt Lake*, speaks of finding them on Antelope and Stansbury Islands, during his survey of the lake in 1850.



**CERVIDÆ.**

**18. *Cervus Canadensis*.** Elk. More or less common in the mountains bordering the valley. Mr. Mecham has seen them as far south as the Mexican boundary, and speaks of having met with droves of two thousand individuals in southern New Mexico.

**19. *Cervus macrotis*.** Mule Deer. Common at favorable localities.

**20. *Cervus leucurus*.** White-tailed Deer. Found in the valleys, but less plentiful than the preceding.

**JACULIDÆ.**

**21. *Jaculus Hudsonius*.** Common.

**MURIDÆ.**

**22. *Mus musculus*.** House Mouse. Common. Lives chiefly in the houses, but also frequents the fields. It arrived here many years since, but neither *M. rattus* nor *M. decumanus* seems to have yet appeared.

**23. *Hesperomys leucopus*, var. *sonoriensis*.** White-footed Mouse. Abundant.

**24. *Neotoma cinerea*.** Wood Rat. Common.

Another wood rat (*N. Mexicana?*), with the tail hairy only at the base, is said by Mr. Mecham to occur two or three hundred miles farther south.

**25. *Arvicola* —?** A large dark-colored *Arvicola*, of the size of *A. riparius*, is represented as common.

**26. *Fiber zibethicus*.** Muskrat. Common in the Great Salt Lake Valley and ranges five or six hundred miles farther south.

**GEOMYIDÆ.**

**27. *Thomomys rufescens*?** The mounds of a species of *Thomomys* are common, but I had no opportunity of examining specimens of the animal.

**CASTORIDÆ.**

**28. *Castor fiber*.** Beaver. Common at favorable localities.

**SCIURIDÆ.**

**29. *Sciurus Hudsonius*, var. *Fremonti*.** Fremont's Squirrel. Common everywhere in the pineries. Said to be the exact counterpart of the eastern red squirrel in notes and habits. I could learn of the occurrence of no other species of *Sciurus* in this region.



- 30. *Sciuropterus volucella*.** Flying Squirrel. Common.
- 31. *Tamias lateralis*.** Say's Striped Squirrel. Common.
- 32. *Tamias quadrivittatus*.** Missouri Striped Squirrel. Common.
- 33. *Spermophilus Harris*.** Harris's Striped Squirrel. Abundant.
- 34. *Spermophilus grammurus*.** A second and larger species of *Spermophilus* is also represented as abundant. This is undoubtedly *S. grammurus*, specimens of which, collected in this vicinity have been brought in by Dr. Hayden's parties.
- 35. *Cynomys Columbianus*.** (*C. Gunnisoni* Baird.) Short-tailed Prairie Dog. According to Mr. Meham, this animal is found as far west as the Sierra Nevada Mountains, but is not of common occurrence in Salt Lake Valley. Smaller than *C. Ludovicianus*, and unfit for food; the other is regarded as excellent eating. The *C. Columbianus* lives in more desert regions and feeds so much upon the different species of *Artemisia* as to be thoroughly impregnated with their peculiar flavor.
- 36. *Arctomys flaviventer*.** Yellow-footed Marmot. Common in the higher parts of the mountains, living among the rocks.

#### HYSTRICIDÆ.

- 37. *Erethizon dorsatus*, var. *epizanthus*.** Porcupine. Not common. Ranges southward to the headwaters of the Arkansas, Red, Gila and Del Norte rivers. Much smaller and lighter colored southward.

#### LAGOMYIDÆ.

- 38. *Lagomys princeps*.** Little Chief Hare. Under the name of "Mountain Rat," this species is well known to Mr. Meham, who has often met with it, both to the northward and southward, near the tops of the higher snow-capped peaks of the Rocky Mountain Ranges. He described to me the animal and its habits so accurately as to leave its identity beyond question.

#### LEPORIDÆ.

- 39. *Lepus callotis*.** Jackass Rabbit. Common.
- 40. *Lepus campestris*.** Prairie Hare. Common.
- 41. *Lepus sylvaticus*, var. *artemisia*.** Common.
- 42. *Lepus Americanus*, var. *Bairdii*?** In addition to the three species of *Lepus* above named, of which we obtained specimens, a fourth was described to me as inhabiting the higher parts of the mountains. It is probably the *L. Bairdii* Hayden and is said (perhaps erroneously) to remain white the whole year.

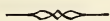
## REGULAR MEETING, MONDAY, APRIL 6, 1874.

MEETING this evening at 7.30 o'clock. The PRESIDENT in the chair. Records read.

Henry C. Hewitt, George A. Bates and Olney W. Brooking, all of Salem, were duly elected resident members.

The reading of the paper assigned for this evening was postponed.

Adjourned.



## REGULAR MEETING, MONDAY, APRIL 20, 1874.

MEETING this evening at 7.30 o'clock. The PRESIDENT in the chair. Records read.

In the absence of the Secretary, Mr. Maurice H. Richardson was elected Secretary *pro tem*.

The SECRETARY announced the following correspondence :—

C. D. Bradley, Boston, March 30; E. W. Buswell, Boston, March 9; J. W. Chadwick, Brooklyn, New York, March 30; N. Cleaveland, Westport, Conn., March 16; Henry B. Dawson, Morrisania, New York, Nov. 21, Jan. 16; S. G. Drake, Boston, April 7; J. A. Gillis, Salem, Oct. 13; George L. Gleason, Feb. 25, March 26; A. Gray, Cambridge, April 14; S. A. Greene, Boston, Feb. 20; John P. Minkler, Albany, New York, March 24; N. Paine, Worcester, April 14, 16; Daniel A. Rogers, Chicago, Ill., March 16; J. L. Sibley, Cambridge, Feb. 17; A. S. Tiffany, Davenport, Iowa, March 19; S. V. Summers, New Orleans, La., March 26; American Swedenborg Printing and Publishing Society, New York, March 19; Naturforschende Gesellschaft in Basel, Feb. 13; Die Naturforschende Gesellschaft in Bern, May, 1873; Boston Public Library, Feb. 20, March 27; Naturwissenschaft Verein zu Bremen, Jan. 6; Buffalo Historical Society, March 23, April 15; Geological Survey of India, Calcutta, Dec. 1; Die K. Gesellschaft der Wissenschaften zu Gottingen, Jan. 21; Literary and Philosophical Society of Liverpool, Feb. 25; Die K. Bayerischen Akademie der Wissenschaften, Munchen, Dec.; New England Historic-Genealogical Society, April 16; New Jersey Historical Society, March 23; New York Historical Society, March 24, April 15; New York Lyceum of Natural History, March 23; Ohio Historical and Philosophical Society, March 24; Rhode Island Historical Society, March 23; Société Entomologique de Russie, Sept 8.

# The LIBRARIAN reported the following additions :—

## *By Donation.*

- BOARDMAN, SAMUEL L., of Augusta, Maine. *The Wealth and Industry of Maine for 1873*, by W. E. S. Whitmore.
- BOON, E. P., of New York, N. Y. *The Corwin Genealogy*, by E. T. Corwin. 1 vol. 8vo. New York, 1872.
- BRADLEE, Rev. C. D., of Boston, Mass. "Death and the Resurrection," a Sermon preached Sunday, March 15, 1874, by donor.
- CITY OF BOSTON. *City Documents for 1873*. 4 vols. 8vo.
- CUTTER, ABRAM E., of Charlestown, Mass. *Annual Reports of the Trustees of Charlestown Free Schools*. 1874.
- DEVEREUX, GEO. H. *Key to North American Birds*, by E. Coues. 1 vol. 8vo Salem, 1872.
- EMERTON, JAMES. *Salem Directory for 1872*. 1 vol. 8vo.
- FOOTE, Rev. H. W., of Boston. *Sermon at King's Chapel in Memory of Charles Sumner, March 22, 1874, and Services at the Funeral, March 16, 1874*.
- GREEN, S. A., of Boston. *Miscellaneous pamphlets*, 27.
- HILL, WM. M. *Manual of the Common Council for 1874*.
- HOLDEN, N. J. *The Commonwealth for 1873*.
- JAMES, Mrs. THOMAS P., of Cambridge. *The Potts Memorial*, by donor. 1 vol. small 4to. Cambridge, 1874.
- MACK, E. C. *The Daguerrotype and Foreign Miscellany*. 36 numbers. *The Radical*. 30 numbers.
- MASSACHUSETTS HORTICULTURAL SOCIETY. *Miscellaneous pamphlets*, 50.
- MORSE, E. S. *Miscellaneous pamphlets*, 31.
- NUTTING, Miss M. O., of South Hadley, Mass. *Catalogue of the Mount Holyoke Female Seminary, 1873-4*.
- PHILLIPS, W. P. *Annual Report of the Mass. Charitable Eye and Ear Infirmary, 1874*.
- PUTNAM, F. W. *Manual of Instruction and Check List of the Birds of North America*, by E. Coues. 1 vol. 8vo.
- SILSBEE, Mrs. B. H. *Miscellaneous pamphlets*, 200.
- STATE BOARD OF HEALTH OF MASS. *Fifth Annual Report, Jan., 1874*.
- STEPHENS, W. H., of Lowville, New York. *Memorial of Dr. J. M. Sturtevant*. 1 vol. 8vo. New York, 1874.
- STICKNEY, M. A. *Christian Observer, 1815, 1816*. 2 vols. 8vo.
- U. S. PATENT OFFICE. *Official Gazette for Feb. 24, March 3, 10, 17, 24, 1874*.
- WHITAKER, A. E., of San Francisco, Cal. *Annual Report of the President, Treasurer and Librarian of the Mercantile Library Association of San Francisco*. 1873.
- WILLIAMS, H. L. *The Fiji Gazette, Oct. 11, 1873*.

## *By Exchange.*

- ARCHIV DER ANTHROPOLOGIE, BRAUNSCHWEIG. Band vi. Heft 3, 1873.
- BIBLIOTHEQUE UNIVERSELLE ET REVUE Suisse. *Archives des Sciences Physiques et Naturelles*. No. 192. Dec., 1873. Genève.
- BOTANISK TIDSSKRIFT I KJÖBENHAVN Tidsskrift, Anden Række, Andet and Tredje Bind, Fredje and Forste Hæfte, 1872-73. 2 pamphlets 8vo.
- GEOLOGICAL SURVEY OF INDIA. *Memoirs of the, Palæontologia India*. Vol. i, pt. 1, Vol. iv, pts. 3, 4, 1873. 3 pamphlets, 4to. *Records of the*, Vol. vi, pts. 1, 2, 3, 4, 1873. 4 pamphlets, 8vo. *Memoirs of the*. Vol. x, pt. 1, 1873. 8vo pamphlet.

GESELLSCHAFT NATURFORSCHENDER FREUNDE IN BERLIN. Festschrift zur Feier des Hundertjährigen Bestehens der Gesellschaft. 1 vol. 4to. Berlin, 1873.

INSTITUT HISTORIQUE IN PARIS. L' Investigateur, 39 Année Juillet-Dec., 1873. 2 pamphlets, 8vo.

INSTITUT NATIONAL GENEVOIS. Bulletin, tome xviii, 1873. 1 vol 8vo.

KÖNIGLICHE GESELLSCHAFT DER WISSENSCHAFTEN GOTTINGEN. Nachrichten, 1873. 1 vol. 12mo.

KÖNIGLICH BAYERISCHEN AKADEMIE DER WISSENSCHAFTEN IN MÜNCHEN. Sitzungsberichte, der Philos. Classe. Heft iv, v, 1872, Heft i, ii, iii, iv, 1873. 6 pamphlets, 8vo. Sitzungsberichte, der Math. Classe, Heft iii, 1872, Heft i, ii, 1873. 3 pamphlets, 8vo.

KONGELIGE DANSKE VIDENSKABERNES SELSKAB IN KJÖBENHAVN. Oversigt, No. i, 1873.

MINNESOTA HISTORICAL SOCIETY. Annual Report of. 1873.

NATURAL HISTORY SOCIETY OF MONTREAL. The Canadian Naturalist, Vol. vii. No. iv, 1874.

NEW HAMPSHIRE HISTORICAL SOCIETY. Proceedings of the. 1872-73, including the Semi-Centennial Exercises, May 22, 1873.

PHILADELPHIA ACADEMY OF NATURAL SCIENCES. Proceedings of the. Pt. iii, Oct., Nov., Dec., 1873.

SOCIÉTÉ D' ACCLIMATATION. Bulletin Mensuel, 2me séries, tome x, No. x, xi, Oct., Nov., 1873. 2 pamphlets, 8vo.

SOCIÉTÉ D' AGRICULTURE, SCIENCES ET ARTS DE LA SARTHE, LE MANS. Bulletin, tome xxi, 4e Trim, 1871-72, tome xxii, 1er, 2e and 3e Trim, 1873-74. 2 pamphlets, 8vo.

SOCIÉTÉ ENTOMOLOGIQUE DE RUSSIE IN ST. PETERSBOURG. Horæ Societatis Entomologicae Russicae, tome viii, Nos. iii, iv, 1871-72, tome ix, Nos. i, ii, 1872. 2 pamphlets, 8vo.

STATE HISTORICAL SOCIETY OF IOWA. The Annals of Iowa for Jan., 1874.

PUBLISHERS. American Justifier. Forest and Stream. Gloucester Telegraph. Haverhill Gazette. Ipswich Chronicle. Lawrence American. Lynn Reporter. Lynn Transcript. Medical and Surgical Reporter. Nation. Nature. Salem Observer. Salem Post. Peabody Press.

Daniel A. Varney, of Salem, was elected a resident member.

A committee, consisting of Messrs. James Kimball, W. P. Upham, John Robinson, Caleb Cooke and William Neilson, was appointed to nominate a list of officers to be presented for election at the annual meeting.

Prof. E. S. MORSE, of Salem, presented some interesting and highly instructive remarks on the various modes of illustration, with brief historical sketches of the same. He first alluded to some of the earlier forms known to have been used, and specified several books



printed at that period, with appropriate and apt illustrations.

He then spoke of wood engraving, the kind of wood used, the manner of preparing the same, the peculiar tools, etc.; also the process of electrotyping, which is now so universally adopted. Copper plate and steel engraving were next described; then the process of lithography; and he alluded briefly in conclusion to the heliotype, albertype and woodburytype. Mr. Morse stated that he would like to speak more fully at some future meeting on the last named processes of illustration. He exhibited several striking specimens of the various styles, and illustrated his remarks by sketches on the black-board.

Vice President F. W. Putnam thought that perhaps the printing by uncivilized races, by the use of hand stamps for the impression of designs in color upon various materials, especially the several kinds of "cloth" made from wood-fibre, really involved all the principles of the arts of engraving and printing, and, like many other things common in our daily life, proved that the principles involved were discovered or gradually developed under various circumstances and in various ways by the wants and desires of man, showing a uniform working of the human intellect, though of course modified by surrounding conditions.

A brief discussion followed, participated in by Messrs. G. A. Perkins, F. W. Putnam, E. S. Morse and others.

Mr. F. W. PUTNAM exhibited a photograph of a skull received from the Davenport Academy of Natural Sciences, as that of a Moundbuilder. The description



printed on the back of the photograph reads, "Skull of 'a Mound Builder' from shell-bed on Rock Island." Mr. Tiffany, in his letter accompanying the photograph, states that there were six other skulls found in the "shell-bed," and also a plate of mica and several other articles. The following description of the locality in which the skull was found accompanied the photograph:—

"The skull known as the shell-bed skull was discovered by A. S. Tiffany in Nov., 1871, and contributed by him to the Davenport Academy of Natural Sciences, with description.

On the Rock Island Arsenal grounds, near the western extremity of the island, there had been an excavation about three hundred feet long and eight feet deep. Three feet from the top there was a deposit of shells, mostly species of *Unio*, *Melania subsolida*, and two or more species of *Helix*. The shell-bed at this place varies from six to sixteen inches thick.

In this shell-bed the skull and bones belonging to one individual were found; all the covering above the bones was an aqueous deposit; above the shells, as well as with them, there were water-worn pebbles and sand, the material becoming finer towards the top, the last foot being fine alluvium and vegetable mould; the sedimentary lines were perfect and unbroken. The excavations had made the means of observing all that could be desired.

The place was visited by many members of the Society and by Prof. Alexander Winchell, while some of the bones were in place, and all agree that the soil covering this prehistoric man was a sedimentary deposit.

Accurate levelling proves the top of this deposit to be eighteen feet above the highest water known in the Mississippi since Fort Armstrong was established on the island."

Mr. Putnam thought that the indications were that the relics were those of the ancient Indians rather than Moundbuilders. He did not know of any shell-beds

formed by the Moundbuilders, though common as Indian refuse heaps, and the fact that large pieces of mica had been found in Indian graves here in Massachusetts proved that the Indians as well as the Moundbuilders placed a special value on that substance.

Mr. PUTNAM also exhibited a large tooth of a shark, presented by Rev. D. P. Noyes of Pigeon Cove, who obtained it from Mr. Andrew Johnson, one of two men who, while in a dory deeply laden with fish, near St. Peter's Bank, had been fiercely attacked by a large shark, which bit at the dory, leaving the marks of one jaw on the bottom of the boat and of the other on the side. The boat was tipped by the shark to such an extent as to spill part of the fish and take in water, and was kept afloat only by vigorous bailing. The fragments of several teeth were found in the wood. The perfect specimen was from the front of the under jaw, and was 1·8 inches in length from the centre of its root to its point, and from the extreme end of its root, 2·1. Its extreme width at base, across the root, was 1·5 inches. On comparison with specimens of large sharks in the Museum of Comparative Zoology, made by Mr. Garman, it was estimated that a tooth of this size would indicate a total length for the animal of more than thirteen feet. Judging from the single tooth, the shark was probably a specimen of the *Carcharias* (*Prionodon*) *lamia*, or a closely allied species, and is a very interesting addition to the fauna of our eastern coast.

# BULLETIN

OF THE

## ESSEX INSTITUTE.

---

---

VOL. 6.

SALEM, MASS., MAY, 1874.

No. 5.

One Dollar a Year in Advance. 10 Cents a Single Copy.

---

---

REGULAR MEETING, MONDAY, APRIL 20, 1874.

[ *Continued.* ]

PREVIOUS to the adjournment the PRESIDENT alluded to the recent death of Prof. Alpheus Crosby, who during his residence in Salem had been an interested member, held several offices, and taken an active part in some of the operations of the Institute. He had also been President of the Salem Athenæum, and from 1858 to 1864 Principal of the State Normal School in Salem.

Dr. GEORGE A. PERKINS, after some appropriate remarks, introduced the following resolutions :—

WHEREAS, in the providence of God, the earthly life of our associate and friend, Professor ALPHEUS CROSBY, has reached its close :

*Resolved*, That, with profound sorrow at the loss we sustain in his lamented death, we place on record our sincere testimony to his eminent talents and exalted worth.

*Resolved*, That, with honorable pride and reverent regard, we shall remember our departed friend as a distinguished Scholar, whose works were a blessing to the student and an honor to his country; as an Educator, whose zeal inspired all that came within the broad circle of his influence, and whose wisdom guided many in the paths of true knowledge; as a Philanthropist, who kindly, but fearlessly, labored for the relief of the suffering and the oppressed of every race; as a Citizen who was always ready to perform the duties which every man owes society; and as a Neighbor and Friend, whose genial spirit, tender sympathies and kindly acts will long be cherished in grateful memories.

*Resolved*, That, while we proffer our heartfelt sympathy to the family of our friend, we rejoice with them in the full assurance that his death is but his entrance into immortal life.

Mr. F. W. PUTNAM seconded the resolutions, and in his remarks alluded to the interest Prof. Crosby had always taken in the Natural History Department of the Institute, and his appreciation of Science. He also spoke of the formation of the Cabinet of Natural History at the State Normal School in this city as due to Prof. Crosby, who, while principal of the school, had greatly encouraged the study of the Natural Sciences and commenced the museum. At that time and for many years after he took an active interest in the encouragement of the study, and it was most fitting that the Institute should do honor to his memory, and thus acknowledge his great scholarship, his sympathy in its work and his worth as a valued member.

The resolutions were then adopted, and the Secretary was requested to enter them upon the records and to send a copy to the family of the deceased.

Adjourned.

## REGULAR MEETING, MONDAY, MAY 4, 1874.

MEETING this evening at 7.30 o'clock. The PRESIDENT in the chair. Records read.

In the absence of the Secretary, MAURICE H. RICHARDSON was requested to act.

The SECRETARY announced the following correspondence:—

From George H. Allen, May 1; Samuel Dawson, Montreal, April 23; R. R. Endicott, Beverly, April 29; Oscar Faulhaber, Haverhill, May 2; H. W. Lowry, Lane Seminary, Walnut Hills, Ohio, April 2; Robert Manning, April 21; George H. Preble, Boston, April 23; E. A. Silsbee, Boston, May 2; William H. Yeomans, Columbia, Conn.; Buffalo Historical Society, April 27; Iowa State Historical Society, April 16, 23; Minnesota Historical Society, April 20; New Jersey Historical Society, April 29; New York Lyceum of Natural History, April 27; Ohio Historical and Philosophical Society, April 17; U. S. Department of Interior, April 29; Smithsonian Institution, April 18, 24.

The LIBRARIAN reported the following additions:—

*By Donation.*

APPLETON, FRANCIS H., of Peabody. Bulletin of the Bussey Institution. P. II, 1874.

DAWSON, SAMUEL, of Montreal, Ca. The Canadian Naturalist and Geologist, Vol. v. Vol. iii, n. s., No. 4. Jan., 1868. Vol. vi, n. s., No. 2. 1871.

DEPARTMENT OF THE INTERIOR, WASHINGTON, D. C. Report of the Committee, 2d Session, 42d Congress, 1871-72. 3 vols. 8vo. British Counter Case and Papers, Arbitration at Geneva, 2d Session, 42d Congress, 1871-72. 1 vol. 8vo. House Journal, 2d Session, 42d Congress, 1871-72. 1 vol. 8vo. Treatise and Conventions since July 4, 1776, 3d Session, 41st Congress, 1870-71. 1 vol. 8vo. British Case and Papers Arbitration at Geneva, 2d Session, 42 Congress. 1871-72. 3 vols. 8vo. Patent Office Reports, 2d Session, 41st Congress, 1869-70. 3 vols. 8vo. Executive Documents, 1st Session, 42d Congress, 1871. 2 vols. 8vo. House Miscellaneous, 1st Session, 42d Congress, 1871. 1 vol. 8vo. House Journal, 1st Session, 42d Congress, 1871. 1 vol. 8vo. Senate Reports, 1st Session, 42d Congress, 1871, 1 vol. 8vo. Senate Documents, 1st Session, 42d Congress, 1871. 1 vol. 8vo. Senate Journal, 1st Session, 42d Congress, 1871. 1 vol. 8vo. Senate Miscellany, 1st Session, 42d Congress, 1871. 1 vol. 8vo. Senate Journal, 2d Session, 42d Congress, 1871-72. 1 vol. 8vo. Senate Documents, 2d Session, 42d Congress, 1871-72. 2 vols. 8vo. Senate Miscellaneous, 2d Session, 42d Congress, 1871-72. 1 vol. 8vo. Senate Reports, 2d Session, 42 Congress, 1871-72. 5 vols. 8vo. Executive Documents, 2d Session, 42d Congress, 1871-72. 7 vols. 8vo. Report of the Secretary of War, 2d Session, 42d Congress, 1871-72. 2 vols. 8vo. Report of the Secretary of the Interior, 2d Session, 42d Congress, 1871-72. 2 vols. 8vo. Report of the Comptroller of the Currency and Commissioners of Internal Revenue, 2d Session, 42d Congress, 1871-72. 1 vol. 8vo. Affairs in the late Insurrectionary States, 2d Session, 42d Congress. 13 vols. 8vo. Camp Mohave, Commerce and Navigation Customs Tariff



Legislation, 2d Session, 42d Congress, 1871-72. 1 vol. 8vo. Explorations and Surveys for a Ship-Canal Isthmus of Tehuantepec, 2d Session, 42d Congress, 1871-72. 1 vol. 4to. Report of the Department of Agriculture, 2d Session, 42d Congress, 1871-72. 1 vol. 8vo. Message and Reports of Department. Foreign Relations of the United States, 2d Session, 42d Congress, 1871-72. 1 vol. 8vo. Annual Reports Secretary of the Treasury, Postmaster General, Secretary of the Navy, 2d Session. 42d Congress, 1871-72. 1 vol. 8vo.

HODGES, MARY O. The Boston Fire, by T. E. Frothingham. 1 vol. 12mo. Plan of Greenwood Cemetery.

LEE, JOHN C. Commercial Bulletin for March, April, 1874.

MERRITT, LUCINDA F. The Shanghai Budget, Dec. 31, 1873, Jan. 8, 15, 22, 29, Feb. 5, 12, 19, 1874.

MORSE, E. S. Forty-fourth Annual Report of the Common Schools of Cincinnati, 1874.

PALFRAY, C. W. The American Law Register, 14 numbers. The Mining Magazine, 6 numbers. The Republic, 4 numbers. Blackwood's Edinburgh Magazine, 8 numbers. Miscellaneous Reviews, 16 numbers. Miscellaneous pamphlets, 25.

POOLE, W., Wenham. Annual Report of the School Committee of Wenham. March, 1874. Annual Report of the Selectmen of Wenham. Feb., 1874.

WALLIS, Mrs. C. A. The Naval Gazetteer. 1 vol. 8vo. London, 1871. Massachusetts Register and Military Record, 1832. 1 vol. 8vo. Public Documents for 1838, 1839, 1846. 4 vols. 8vo. A Treatise on the Plague and Yellow Fever. 1 vol. 8vo. 1799. The Hierophant. 1 vol. 8vo. United States Weekly Telegraph, 1831, 2 vols. 8vo. Patent Office Report, 1848, 1850-51, 1852-53, 1857. 4 vols. 8vo. Twenty-third Annual Report of the Board of Education, 1860. 1 vol. 8vo. Political Works of Thomas Paine. 1 vol. 8vo. Mitchell's United States. 1 vol. 8vo. Illustrations of the Divine Government. 1 vol. 8vo. Sermons by O. Dewy. 2 vols. 12mo. Triumph, by Rev. Samuel Hutchinson. 1 vol. 16mo. History of Charles the Twelfth. 1 vol. 12mo. 1833. Dictionary of Thomas Sheridan. 1 vol. 16mo. 1796. Names and Titles of Jesus. 1 vol. 8vo. The Principles of Grammar. 1 vol. 12mo. A Geological Reconnaissance of the State of Tennessee. 1 vol. 8vo. 1856. Memoir of Philip Lindsley. 1 vol. 8vo. 1859. Life of Bonaparte. 1 vol. 12mo. Inquiry, by W. Balfour. 1 vol. 12mo. Memoirs of Lafayette. 1 vol. 12mo. Messages of General Andrew Jackson. 1 vol. 12mo. Election Sermon by W. E. Channing. 1 vol. 8vo. American Almanacs, 1831, 1833. 2 vols. 12mo. Public and Private Economy. 1 vol. 12mo. Capital Punishment. 1 vol. 8vo. The Heavenly Union, by W. H. Porter. 1 vol. 12mo. The Constitution of the Fifteen States. 1 vol. 12mo. Memoir of Rev. E. Payson. 1 vol. 16mo. Chesterfield's Letters to his Son. 3 vols. 16mo. Manual for the General Court for 1837, 1838. 2 vols. 12mo. Mrs. Chapone's Letters. 1 vol. 18mo.

WATERS, J. L. Arnold's First Greek Book. 1 vol. 12mo. Adjutant General's Report of Illinois, 1861-62. 1 vol. 8vo. Report of the Committee on Accounts, 1871. 1 vol. 8vo. Report on Insanity and Idiotcy in Mass. 1 vol. 8vo. Commerce and Navigation, 1854. 1 vol. 8vo. Transactions of the Illinois State Agricultural Society, 1867-8. 1 vol. 8vo. Miscellaneous pamphlets, 37.

WILLSON, E. B. Record of Unitarian Worthies for April, 1874. 8vo pamph.

### *By Exchange.*

AMERICAN ANTIQUARIAN SOCIETY. Proceedings of the Annual Meeting, Oct. 21, 1873.

BOSTON PUBLIC LIBRARY. Bulletin for April, 1874.

BUFFALO SOCIETY OF NATURAL SCIENCES. Bulletin of. Vol. i, No. 4. 1873-74.

CANADIAN INSTITUTE OF TORONTO. The Canadian Journal for April, 1874.  
 NEW ENGLAND HISTORIC-GENEALOGICAL SOCIETY. Historical and Genealogical Register for April-June, 1874.

NEW YORK GENEALOGICAL AND BIOGRAPHICAL SOCIETY. Record of the. Vol. v, No. 2. April, 1874.

PUBLISHERS. American Naturalist. Forest and Stream. Gloucester Telegraph. Haverhill Gazette. Ipswich Chronicle. Lawrence American. Lynn Reporter. Lynn Transcript. Medical and Surgical Reporter. Nation. Nature. Peabody Press. Salem Observer. Salem Post. Silliman's Journal.

Edward Thompson, of Salem, was elected a resident member.

EDW. A. SILSBEE, of Salem, gave a familiar talk on art matters. The following is an abstract of his remarks :—

WE must go to Europe to see art in its greatness and extent. Driven through a hundred galleries, we come to know something at last. One day we wake and find ourselves *connoisseurs*. We grow confident. We go alone. But time is needful to mature taste. It grows by lying fallow, and is a constant revision of previous judgments. It is an induction like science, and should be wide as the subject.

Art is a double sense, an eye behind the natural eye. Artists look upon nature with subtler vision. They interpret it for us. We must look with their eyes to enter into their work. They multiply our senses and give us enjoyments undreamt of before. Poets do the same. Without being artists or poets we can get from them their key of vision, as families and friends grow alike by natural imbuing and like atmosphere. Thus we have the genius of the world at command, and live on the top of all the ages. Goëthe went far to realize this. It is culture in its ideality and entirety. Emerson would do it with more artistic temperament. Artistic sense differs from the poetic. The one is general, emotional; the other professional. They should play into each other. Artist should be poetic; poet artistic.

Poetry, painting, music, sculpture, architecture, are varying phases of one sense of the beautiful. Criticism is interchangeable in these arts. Feeling, execution, we speak of in either. Feeling is genius; execution, talent. The comprehension of feeling is a great way in art.

American art is scenic, external, no quick sympathy with nature in her every-day mood. It must fly to mountains, Niagaras, icebergs, as if the miracle of nature were not lying around us every day, to hold us with wonder or thrill us with enthusiasm; the ineffable significance in common things, complexity in simplicity, simplicity in complexity; the infinite as conspicuous in a weed as in a world. Zoologists might as well only study elephants, botanists trees, or geologists mountains. Church, Bierstadt, do the whole of nature at a blow. Snow mountains, middle distance, foreground, waterfalls, Indians, encampments,—enough for a dozen pictures in one. They seem to say, "walk up, gentlemen, so much for your money." One cannot take in so much at a time. You might as well put tragedy, comedy, elegy, pastoral in one poem. Turner is open to the same criticism; but he had an epic genius, sympathy, imaginative power, great artistic sensibility and expression. He is florid in taste, not simple—Byronic, the same unquiet impulses and artificial associations in subject, *tourmentée*—surfeited with, *embarras de richesse*.

The French school is simple, does not attempt rashly the sublime, nor do too much in one composition. They paint the nearness and intimacy of nature, her every-day. Nothing sensational, belittling, conventional or hackneyed comes into their work. Nature is endless, and they know it and cling to it. We, when we are not grandiose, are pretty, never subtle. They are sincere, meet nature face to face, need nothing local, romantic, trite or obvious to

inspire them. Nature is revealed to them. You walk into their pictures as into a garden or a field, every minute part is felt and well given. Our art is thin, distant objects are faint, not far; modelling, linear perspectives, relations of tint, tone, texture, color; sense of form, reflected lights, ærial perspectives; are ignored or not known. The whole is flat. These relations are "values," an inestimable word. The French level spaces, shrubs, trees and ground, shy pools and furtive grasses or weeds, carefully rendered as they are, are worth legions of rocky mountains and hearts of the Andes done in this shallow, conventional way. With its blended outline, French art gives us what we feel when we see, not what we see without feeling, which is our key, and that with half an eye. Our landscape is optical, theirs mental.

Japanese art has the same integrity, never opens its eyes but it sees a picture; more through a window pane indeed than another can see in a whole life; for art is not the seeing, the physical sense, but the significance every object bears to the artistic eye. The Belgians, Dutch, are where the French are, one with nature as she is without adornment. Constable, an Englishman, originated the school but left no following in England. The English are painstaking but unideal; metallic, positive, over brilliant in color. No subtle harmony, or subdued feeling, or gray tones. Wordsworth is yet to be grown up to in art there. German art is stilted when not influenced by the French school. Like English or American painting, it is lost without a subject, a factitious element or motive in the composition other than nature. It must have incident or association, as if nature were not enough. Art in these countries is where poetry was in the last century, artificial or uninspired. It studied form, we study feeling.

In visiting galleries we must watch the mood, not have

our eye full of the flaring colors of the street, be patient and wait for the object to glide into our mind, which one day it will do. It cannot be forced, and art is too delicate a thing to be captured *coup de main*. Our knowledge shifts, and taste winnows. It is a step, a gradation. Judgment at last becomes secure, and perception rapid. Coleridge said, "every great artist creates the taste by which he is appreciated." He brings something new into the world, his genius. He must instruct us, not we him. He can teach us to see what we did not see before.

The Greek mind drew all nature into itself, distilled it in the alembic of its imagination, and gave it forth simply as form. Hence the perfection of that form. The northern, Christian, and later mind, feels nature mystically, sympathetically, and does not attempt to embody, personify, reduce to form. Gothic architecture is the greatest fruit of this feeling. It represents the infinite, strives after it, is filled with it. It is unending, flexible, emotional, spiritual. It is a life and literature in stone. For three centuries all that men felt and knew went to it. It created the grotesque. A gray mist of stone, it grows into marvellous life under our eye. It is peopled with Calibans and Midsummer Night's Dreams. It suggests something beyond itself. The Greek did what he felt, the Goth felt what he could not do. The Greek is one intense concentration, fired with the beauty of the world, drawn from all experience, the genius of nature made manifest. The Roman arch expresses dominion, security, serenity, beauty. The Gothic emotion, restless but aspiring, ever pointing upward. The Roman arch, law, the Gothic, religion. Hence the sublime impulse of the northern churches.

St. Peter's fails of effect from this cause. It is prosaic, though huge. You have to accustom yourself to it to



feel it. Then it is like a new world by itself, it has enclosed so much of space. It should have been a Greek cross. In that form all mass contributes to unity and impressiveness of effect. Now the façade fritters the dome. One should enter it by the short arm of the cross, then outside and in are one, and we get the grand impression at once.

The great expressions of northern art are Gothic, Michael Angelo, Shakespeare, and, as Herbert Spencer added, Beethoven. Dante was one with Gothic, and not to be separated from it.

The great artists in modern times are Michael Angelo, who created types, and pried into the unknown; Raphael the great musical genius, endless in invention, composition, symphonious and ever graceful, feeling form as a Greek almost, and making it sensuous as Titian did color; Leonardo, who did the inscrutable; Correggio, who played with flame and softness, archness and grace, sweet as a child; Velasquez, who needed nothing but the fact to inspire him, who dignified realism by power and artistic apprehension into ideality; Titian, the great poet, intense in romantic depth of color, who brought back sensuousness without license into the world; Rubens and Rembrandt in the north, and Albert Durer. All other men are to be ranked below these.

Titian includes the Venetians, a noble company. He has, almost alone among moderns, the serenity of the Greek. His pose is unique. He is the Phidias of portrait painting. Tintoret with his fiery power is less than his depth. The "Sacred and Profane Love" is as if dropped out of the sky, and is without effort. As mere painting, it is the greatest picture in the world. Paul Veronese was frank and healthful; a subtile, ingenuous, delightful master, but more external than Titian. Vandyke comes

after Rubens and Rembrandt. Rembrandt was a magician, and discovered the poetry in light and shade. Rubens was robustious, splendid, healthful, restored enjoyment of life to men, painted up to nature more than any man, and could do so, and had the largest scope and facility. His style is not searching, or classical, but romantic and perfectly unconfined. Albert Durer was mystical, Gothic, natural, and felt the significance of things. Murillo, more of a poet, must be placed below Velasquez for power.

In sculpture there are few transcendent things, but these are superhuman, and would be incredible if they were not seen. The relics of the Parthenon, the Venus of Milo, a few other Greek fragments—these are heroic. They look as if they had grown, not been made. As in the old Italian pictures the company have happened there, not been placed, Gothic has grown not been built. It is an organic thing, a thing of nature. The Greek temple is the crystallization of all the influences for beauty of the world distilled in one form and object. Even the Belvidere torso, the Laocoon, the Apollo do not attain to this sublime repose, they are *tourmentées* in the comparison.

English art has but few names, but these are unequalled in their kind. Hogarth, Reynolds, Gainsborough, Flaxman, Stothard, Wilkie, Turner, Constable, Morland, Leslie and Newton, "Old Crome," Blake, a prehistoric man, an artistic mystic, and a few others. The English mind expresses itself in poetry.

Kaulbach, who has just died, had a stilted, academic manner. Grandiose and imposing, full of talent, but like all the Germans, a bad colorist, he was not a genius. They are schoolmasters in art, excogitated, pedantic. If their claim were allowed according to the amount they have done, the old Italians would be dwarfed. Kaulbach's

illustrations are obvious, line-y in style, *poséed*; lack mystery, imagination, suggestiveness.

Three things make sculpture, feeling for form, feeling for life, feeling for character. The Greeks are unapproached in the first two. If the moderns have done any thing it is in the last. Sculpture should take apart like literature, and every fragment should show mastery, vitality, organism. A line of Shakespeare, a passage of Milton, a square foot of Rubens, Veronese, Velasquez proves the master. Modern sculpture will not bear this test.

American organization is finer for art perhaps than the English but lacks robustness. Hunt is the best exemplification of this, and does things not equalled there for artistic sensibility, or indeed on the continent. Puritanism was not an artistic cast of mind or character. We need temperament. The Irish will give us this, and Germans intellectual industry. Puritanism chilled the blood which needs enrichment. Hawthorne, a subtle imaginative genius, was morbid, not enough flesh and blood in him. Emerson, a great teacher, is not creative. We are forty millions in a continent. Nature subdues man here, and makes him a mercantile animal. It will be so for a century or more, till the continent fills in. Meantime best forces, the outcome of forty millions, do not keep each other in countenance, are too scattered. No capital exists, school of art, literature, manners. New York is a mart, Washington a galvanized capital for six months in the year.

We lack passion in poetry. We describe nature, are not near to her. The only sensibility we know of is in Jones Very's sonnets, and Emerson's early essays. The sonnets are Hebraic in their single-mindedness and elevation. They are like voices of nature, purling of brooks

or robins' notes; innocent and carolling, they study no form, but have the best, and are Saxon and monosyllabic in style and structure.

The community does not reflect its intelligence in criticism of painting. It is the merest commonplace. Literature, the drama, music, are criticised discriminately. People are impatient of criticism in painting, and think their eye as good as another's. This is an art that requires study and delicate judgment as the other arts.

The justification of painting, the reason of its being is, that we give what we feel. Otherwise photography would be the greatest artist, and dispense with all other. Science knows. Art feels. It is the interchange of the soul with the object, each affecting the other, that makes art. Goëthe said art was greater than nature, because, of the two factors, soul is the greatest and most important, and summons nature to its throne and makes use of it. Music is the great living art. No great picture has been painted for two hundred years. Why genius rises in tides every two or three hundred years, and expresses itself in poetry, or painting, or architecture, and leaves the succeeding ages barren of great creative works, has never been explained. At any rate it seems we have not exhausted the dispensation of fifty years ago and have had no burst of poetry since. All is an after-math. No new phase of imaginative feeling.

Critics may judge of art more fairly than artists, for artists are constituted to feel one thing intensely. This prejudices them against other kinds of excellence. The critic may be more impartial and universal if he has sensibility, not being swayed by any predisposition, and not himself gifted with any originating power. He should be sympathetic and interpretative. What he cannot discover must be *technique* and not universal, for art

must render itself to the world and not be of a caste or mystery.

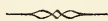
It cannot be too much insisted on, art does not depend upon subject. Rembrandt saw subject everywhere, and transmuted the dust to gold. We are getting nearer to nature in all things, life, literature, law, art, manners, religion, sloughing off the accretions of centuries. Science is lending a powerful hand. The age is her's. The American loves adornment, which is a kind of art, and is willing to spend for it. American ladies' instinct for dress is conspicuous while the English are clumsy at it. Our houses are more neatly constructed than in the Provinces.

Allston was the greatest artist we have produced, a man cast in the mould of the old masters but missing his time. Like Coleridge as poet, he was potentially great. Landseer, the greatest English artist of our generation, and the only one of genius, is best seen in prints for his painting is chalky and thin. The English live among animals and should do them well as the Greeks did the human form which they constantly saw, and the Venetians were inspired by the *lagune* around them, and the vicinity and intercourse of the East.

The æsthetic is born in man as early as the religious or intellectual. The savage no sooner begins to beat his neighbor's brains out but he carves his club. He paints his own body for beauty or terror, but it requires a new birth to know beauty intimately as Wordsworth, Shelley, Blake, knew it. We must go behind the conventional, recover the "innocency of the eye," "strip the veil of familiarity from things." Artists interpret, poets make us know it. But among poets and artists there are the supersensuous, and the describers merely. Those who have insight and ideality, and spiritual imagination, and those who never get at the heart, the core, the soul of



things; the imaginative significance of the universe, but dwell in the superficies. That it is the province of all art to discover and give. In measure of the revelation of it is it great.



#### ANNUAL MEETING, WEDNESDAY, MAY 13, 1874.

ACCORDING to the notification, the meeting was held at 3 P.M. The PRESIDENT in the chair. Records read.

The annual reports of the officers and of the curators were read and accepted, and from them the accompanying

#### RETROSPECT OF THE YEAR

has been compiled. The placing before large and interested assemblages a series of superior entertainments, consisting of instructive lectures and essays, brilliant concerts and exhibitions of flowers, fruit and vegetables, of a high order, has been attended with eminent success. In other directions a like degree of vigor and zeal has been noticeable: thus the library and museum have been largely increased, by purchase, donations, and by exchange; the field, evening and other meetings have been well attended and at these meetings many valuable communications were presented and referred to the appropriate committee for publication.

MEMBERS. — Changes occur in the list of our associates, by the addition of new names, and the withdrawal of some by resignation, removal from the county or vicinity, or by death. In this connection, notices of six of the resident members who have deceased within the year are inserted.

1. *William Oliver Thayer*. Son of Oliver and Rachel (Bancroft) Thayer, of Salem. He had from his youth been an interested member, although his business avocations prevented him from taking an active part in the meetings; he was engaged in the lumber business with his father. Died June 9, 1873, aged thirty-nine.

2. *Richard Saltonstall Rogers*, well known to those of a past generation as an active merchant in the firm of N. L. Rogers & Brothers, who were pioneers and founders, in the United States, of the Zanzibar and New Holland trades; for many years previous to 1842 were actively engaged in foreign commerce, mainly with the East Indies, and were among the most distinguished merchants of Salem. Died June 11, 1873, aged eighty-three years.

3. *Benjamin F. Browne*, known as a druggist and apothecary for many years in this city, and latterly for his interest and zeal in the study of our local history. The results of many of his investigations and researches have been printed in the first volumes of the "Historical Collections" of the Institute, contributing largely to the importance and historical value of this publication. He was the son of Benjamin and Elizabeth (Andrew) Browne of Salem, and was born July 14, 1793. Died November 23, 1873, aged eighty years and four months.

4. *John Jewett*, for many years established in the cabinet making business, and later a partner in the firm of Prime, Kenney & Co. Son of John and Elizabeth (Hodgkins) Jewett, born at Ipswich, Dec. 24, 1795, came to Salem a young man and has since that time been a resident of this city. He was an enterprising and useful citizen; for many years a director in the Commercial (now First National) Bank, a member of the city government, representative to the legislature, and served efficiently in other local capacities. He died Feb. 28, 1874.

5. *Robert Peele*, son of Robert and Elizabeth (Smith) Peele; had during a long life been engaged in the hardware business until a few years since, when he retired. He was always much interested in antiquarian lore and in collecting materials for our local history. He died April 7, 1874, aged eighty years.

6. *Alpheus Crosby*. Widely known as a distinguished scholar and educator; died at his residence in this city, April 17, 1874. He was son of Dr. Asa Crosby, and was born in Sandwich, N. H., Oct. 13, 1810, a graduate of Dartmouth in the class of 1827, and for many years a tutor and professor in that institution. In October, 1857, he became principal of the State Normal School at Salem and continued in that office until July, 1865, and since that time has resided in this city engaged in literary pursuits. Prof. Crosby was one of the most accurate and thorough Greek scholars that our country has produced. He has published several Greek text books that are held in high repute, besides other valuable educational works, and his exhaustive labors upon a new Greek dictionary which he was preparing probably induced the disease of which he died.

Prof. Crosby had always been a valuable citizen. For ten years he had been president of the Salem Athenæum, and had been one of the officers of the Institute, in whose welfare he took a deep interest and whose cause he has advanced by his donations and efforts in other ways.

Two of our corresponding members have deceased, *Prof. L. Agassiz* at Cambridge, Dec. 13, 1873, and *Col. J. W. Foster* at Chicago, Illinois, June 29, 1873. Also *Prof. J. L. Russell*, an early member of the Natural History Society, June 7, 1873. At special meetings held for the purpose resolutions of respect were passed.

[To be continued.]

# BULLETIN

OF THE

## ESSEX INSTITUTE.

---

VOL. 6.

SALEM, MASS., JUNE, 1874.

No. 6.

One Dollar a Year in Advance. 10 Cents a Single Copy.

---

ANNUAL MEETING, WEDNESDAY, MAY 13, 1874.

RETROSPECT OF THE YEAR.

[ *Continued.* ]

MEETINGS.—During the summer and early autumn *Field Meetings* and *Horticultural Exhibitions* occupied the attention of the Institute. The meetings were four in number, first at Amesbury, on Thursday, June 19, 1873, by invitation of the Amesbury and Salisbury Natural History Club, who were very courteous and attentive during the visit. At the meeting in the Universalist Church the recent decease of Messrs. R. S. Rogers, J. L. Russell and W. O. Thayer was noticed. Mr. Allen W. Dodge, after a few general remarks, alluded to some of the habits and customs of our ancestors gleaned from the records in the registers of probate and of deeds. Mr. F. W. Putnam alluded to some Indian relics belonging to the museum of the Natural History Club, particularly specifying an interesting carved stone rudely representing a porpoise, or better still, a white whale or *Beluga*.

Among the other speakers were Messrs. James H. Emerton, of Salem, Homer B. Crane, William C. Binney, Rev. Messrs. Eaton and Dinsmore of Amesbury.

The second meeting was at Lynnfield, Wednesday, July 30, 1873. The principal points of interest were visited during the forenoon. At the afternoon meeting in the church the recent decease of Col. Foster at Chicago was noticed. Mr. F. W. Putnam, Rev. E. C. Bolles, John Robinson, Rev. S. H. Taft, of Humboldt College, Gen. Josiah Newhall, of Lynnfield, and others, reported on the findings of the day, and made such observations as were suggested thereby.

The third field meeting was at Chebacco Pond, Tuesday, Aug. 12, 1873, by the kind invitation of Messrs. J. Whipple & Sons. The meeting was held on the platform in the grove, and was very largely attended, several distinguished persons being in the vicinity were present, and among the speakers were Hon. A. W. Dodge of Hamilton, George D. Phippen of Salem, Prof. Asa Gray and Prof. George L. Goodale of Cambridge, J. J. H. Gregory, Esq., of Marblehead, Mr. F. W. Putnam and others.

The fourth meeting was at Danvers Centre, formerly Salem Village, the seat of the witchcraft delusion in 1692. The afternoon session was held in the church. Messrs. F. W. Putnam, John Robinson, E. C. Bolles, C. B. Rice, David Stiles, Jeremiah Spofford, Augustus Mudge, W. P. Upham, George Tapley and others addressed the meeting. A communication was presented from Philip P. Carpenter, of Montreal, "On the Generic Affinities of the New England Chitons." (See Bulletin, Vol. v, p. 152.)

*Evening meetings* have been held at the rooms usually on the first and third Monday evenings of each month.



At these meetings an increasing interest was manifested, and several valuable communications were presented, abstracts of which have been printed in the *BULLETIN* or reserved for the "Historical Collections." The following may be specified:—"On the Mechanism of the Flight of Birds," by C. J. Maynard, "Notes on the Bird Fauna of the Salt Lake Valley and the Adjacent Portions of the Wahsatch Mountains," by Robert Ridgway, "The Birds of Colorado," by Robert Ridgway; "On Some New Forms of American Birds," by Spencer F. Baird and Robert Ridgway; "Natural History in the Schools," by Byron Groce; "Notices of Several Rare and Interesting Fishes from the Harbors of Marblehead, Salem and Beverly," by F. W. Putnam; "On the Early Days and Rapid Growth of California," by Alfred Peabody; "Notice of the Black Fish shot in Salem Harbor, October, 1873," by F. W. Putnam; "On Art Studies," by Walter Smith; "Notes from the Diary of Wm. Russell, prior to and chiefly during the Time of his Confinement in Mill Prison during the War of the Revolution," communicated by James Kimball; "On Copperplate engraving," by Geo. M. White; "Journal of Rev. Daniel Shute, D. D., Chaplain of the Expedition to Canada in 1758," by James Kimball; "Notes on the Mammals of Portions of Kansas, Colorado, Wyoming and Utah," by J. A. Allen; "On Various Modes of Illustration," by E. S. Morse; "Description of a Skull of a Mound-builder, from Shell Bed on Rock Island," by A. S. Tiffany; "A Familiar Talk on Art Matters," by Edward A. Silsbee. A special meeting was held on Thursday evening, in the Whitfield church, Newburyport, for the reading of the memorial address upon the late Henry Coit Perkins, M. D., an esteemed member of the Institute, by Rev. Samuel J. Spalding, D.D. A special meeting was also

held on Tuesday evening, Dec. 16, 1873, to celebrate the destruction of the tea in Boston Harbor, Dec. 16, 1773. On this occasion a paper was read by James Kimball. On Monday evening, Feb. 16, 1874, a reception was given to Rev. Charles Kingsley, the distinguished Canon of Westminster.

LECTURES.—The series of lectures alluded to in the last annual report,\* in course of delivery, by Rev. E. C. Bolles, at Danvers, "On the Microscope and its Teachings, and at the rooms of the Institute "On the Microscope," were delivered according to agreement. During the latter part of the autumn and early winter a course of six lectures was delivered in Wenham, two by Rev. E. C. Bolles, two by Mr. F. W. Putnam and one each by Rev. E. S. Atwood and Rev. J. Coit. Also a course of eight lectures at Ipswich, three by Mr. Bolles, two by Mr. Putnam, and one each by Messrs. Atwood and Coit and C. M. Tracy of Lynn. Mr. Bolles has also delivered two lectures each at Gloucester and Manchester and one at Peabody. Richard A. Proctor of London, Hon. Sec'y of Roy. Astron. Soc., gave three lectures at the rooms of the Institute in November, "On Planets," "On Comets and Meteors," and "On the Moon and Stars." Rev. E. C. Bolles gave four lectures on the microscope in the rooms of the Institute on Wednesday evenings, March 25, April 1, 8 and 15 of the present year.

LECTURES AND CONCERTS under the direction of the curators of the department of arts. A series of eight entertainments, with an extra and a supplementary course of three were given in the Mechanic Hall to large and appreciative audiences. 1st, Mon., Oct. 27, Richard A.

---

\* See Bulletin of Essex Institute, Vol. 5, p. 45.

Proctor, of London, Hon. Sec. Roy. Astron. Soc., subject, "The Sun." 2d, Wed., Nov. 12, concert by the English Glee Club, of New York City. 3d, Mon., Dec. 1, Readings by Prof. George W. Blish. 4th, Mon., Dec. 8, Rev. Newman Hall, of Surrey Chapel, London, subject, "Reminiscences of Mountain Rambles." 5th, Mon., Dec. 22, Prof. W. H. Niles, of Cambridge, subject, "The High Alps." 6th, Mon., Jan. 5, Charles Bradlaugh, M.P., of England, subject, "Republicanism in England." 7th, Wed., Jan. 14, concert by Mr. B. J. Lang, of Boston, with assistants, and the Essex Institute Chorus. 8th, Mon., Jan. 26, concert by Harvard Glee Club of Cambridge. *Extra*, Fri., Jan. 30, Wilkie Collins of London, reading of "The Dream Woman." *Supplementary course*, 1st, Mon., Feb. 16, Charles Kingsley, Canon of Westminster, subject, "Westminster Abbey," his first lecture in America. 2d, Wed., March 18, concert by Adelaide Phillips. 3d, Mon., March 30, a concert by the Essex Institute Chorus.

**HORTICULTURAL.**—The operations of this department have been very successfully conducted during the past season. Six exhibitions have been held, three devoted to the show of special flowers, the others more general in their character. 1st, on Friday evening, June 13, for the exhibition of several magnificent specimens of *Cereus grandiflora*, *Lilium auratum*, *Philocactus crenatus* (white cactus) and other species of cacti. 2d, Monday and Tuesday, June 23 and 24, the rose show, one of marked excellence. The conservatories also contributed many choice plants. 3d, Monday, July 28, special exhibition, a fine plant of *Eucharis grandiflora*, also Gloxinias, *Lilium auratum*, night blooming cereus and other plants. 4th, Thursday, Aug. 14, continued on Friday on account of

the weather, *Caladium argyrites* from D. M. Balch, white oleander from F. Putnam, varieties of Coleus and ferns from Mrs. C. Hoffman. 5th, Wednesday, Sept. 3, a very large and beautiful display of German and French asters from the garden of John Robinson, and a flower of the *Antheoliza prealta* from the Cape of Good Hope, by Alfred Peabody. 6th, the annual, from Tuesday, Sept. 16th to Friday, the 19th, was decidedly fine in every respect, and fruit, flowers and vegetables were exhibited from all parts of the county, though by far the largest portion from Salem and its vicinity. The main hall and the two anterooms on the first floor were used, and all the tables were filled to overflowing. The hall was tastefully arranged and the bright tints of the beautiful flowers and the bold broad or pinnated points of the tropical palms placed at the entrance and down the centre of the hall, produced a highly pleasing effect, which was materially aided by the gentle stream of water from a miniature fountain rippling over a bed of shells and stones, among which were growing ferns and several aquatic plants. This exhibition was, in many respects, the finest ever attempted in this city or its vicinity, and for the beauty of the articles shown it was superior to, and in the attendance it exceeded, any before held under the direction of the Institute.

There have been in some previous years larger displays of fruit, but rarely a show which combined so much that was interesting and attractive, and never one where there had been gathered so fine a collection and variety of plants. The fruit exhibited, especially of pears, was characterized by general and uniform excellence of quality and appearance rather than by mammoth growth or other exceptional peculiarities. Some very fine specimens of the St. Michael pear suggested the possibility of

a revival of this variety, the pride of the Salem gardens a half century ago. The show of vegetables was also quite extensive.

The following prizes and gratuities were awarded :—

#### FLOWERS.

Pot-plants.—First, D. M. Balch; second, Hugh Wilson.  
 Coleus "Chameleon."—Kernwood.  
 Hanging Basket.—First, W. H. Gardner; second, John Meiklejohn.  
 Stand, growing plants.—W. H. Gardner.  
 Basket cut flowers.—First, W. H. Gardner; second, Miss Alice Beckford.  
 Gladioli.—First, Francis Putnam; second, D. M. Balch.  
 Bouquets.—W. H. Gardner.  
 Floral Design.—John Meiklejohn.  
 Gratuity.—Mrs. Horner, Georgetown, native plants; Hugh Wilson, and Mrs. J. D. Hammond, garden stands; J. H. Hill, Amesbury, collections; John Meiklejohn, well grown plants.

#### FRUIT.

Collection pears.—First, Wm. Maloon; second, Charles A. Ropes.  
 Best plate.—Seckel, T. P. Symonds; Bartlett, G. P. Rust; Beurre Hardy, B. R. Symonds; Duchesse and Louise Bonne, A. H. Hubbard; Flemish Beauty, James Donaldson.  
 Collection apples.—First, A. B. Woodis, Ropes Farm; second, D. P. Carpenter.  
 Single Dish.—Baldwin, Charles E. Symonds.  
 Native Grapes.—First, D. M. Balch; second, C. Higbee.  
 Best Rogers, No. 15, W. P. Locke: Hartford Prolific, Edwin Verry; Delaware, T. P. Symonds; Foreign (single dish) Chas. R. Waters.  
 Collection peaches.—First, Geo. Bowker; second, C. M. Richardson.  
 Single Dish.—Fred. Lamson.  
 Gratuity.—Peaches, to Mrs. G. W. Downing; Figs, Aaron Smith; collection, H. F. Skerry.

#### VEGETABLES.

Collection.—First, David Wentzell; second, Geo. W. Rogers; third, City of Salem (farm).

Early Rose potato.—C. S. Emmerton; other varieties of potato, C. S. Emmerton; marrow squash, E. C. Larrabee; tomato (best 12) trophy, E. C. Larrabee; cabbage, F. W. Lyford; tomato (sort not trophy), Plummer Farm School; Beets, A. B. Woodis; Beets (mangels), A. B. Woodis; water melons, Plummer Farm School; Mammoth squash (102 lbs.), David Wentzell, who had two on one vine weighing together 174 pounds. and a fourth 87 pounds.

The prizes awarded on the first day for "cut flowers" were, first, Francis Putnam; second, John Meiklejohn; third, Charles A. Beckford; gratuity to Miss Alice Glover for "tasteful arrangement of flowers."

The contributors were as follows :—

FLOWERS, POT PLANTS, FERNS, BASKETS, ETC.—D. M. Balch, Hugh Wilson, Francis Putnam, George W. Rogers, John Robinson, John Meiklejohn, C. A. Beckford, John Doig, Mabel Emery (Lynn), J. Henry Hill (Amesbury), John Webster, Mrs. Horner (Georgetown), Miss Annie Bancroft, Mrs. J. B. Osborne, Mrs. James



O. Safford, Mrs. W. F. Gardner, Miss C. A. Neal, Miss Grace A. Glover, Mrs. Miller, Miss Alice Beckford, Henry D. Johnson, Miss S. W. Chandler, Mrs. S. H. Smith, William H. Gardner, Mrs. R. Winn, William P. Parker, B. D. Hill (Peabody), Miss Mary T. Ropes, Mrs. Clough, Mrs. David Pingree, C. A. Ropes, Clifford Burnes, C. H. Pulsifer, S. Killam, Dr. G. A. Perkins, Mrs. J. D. Hammond, E. S. Atwood, Mrs. E. D. Kimball.

PEARS, PEACHES, APPLES, PLUMS, GRAPES, ETC.—A. J. Hubbard (Peabody) Mrs. John Goldsmith, W. H. Nichols, Mrs. Walter Leavitt, S. P. Fowler, Mrs. F. L. Ward, V. C. Stowe, J. B. Osgood, Miss Richardson, C. M. Richardson, B. Ballard, J. W. Goldthwait, D. P. Carpenter, George D. Glover, Charles E. Symonds, Mrs. Kimball, R. C. Manning, G. P. Rust, Wm. Maloon, Jona. Davis, George Merrill, Mrs. Edward Lamson, A. P. Weare, Jno. Daniels, Miss H. Short, Thorp Fisher, E. Emmerton, C. R. Waters, Alfred Peabody, Mrs. E. Moore, W. H. Rice, Benjamin Edwards, S. P. Walcott, C. Higbee, Alfred Whalen, L. D. Pettingill, S. W. Bancroft, N. A. Horton, B. R. Symonds, K. Babbage, Mrs. P. English, George A. Newhall, Geo. Bowker, W. B. Aiken, Charles Creesy, T. P. Symonds, Frederick Lamson, J. P. Cooke, James Donaldson, C. H. Buxton, H. F. Skerry, J. Margati, J. R. Chase, C. Harrington, C. A. Ropes, S. G. Jones, Samuel Newman (Peabody), Wm. Hill, J. F. Dodge, M. P. Locke, Aug. Very, G. F. Putnam, F. L. Ward, Thomas Symonds, B. H. Silsbee, D. M. Balch, Mrs. George Downing, Mrs. Henry Webb, C. H. Webber, Mrs. J. Pierce, Mrs. G. A. Newhall, J. Goldsmith, Mrs. Wilkinson, E. H. Dodge, Aaron Smith.

VEGETABLES.—David Wentzell, George W. Rogers, City of Salem, Plummer Farm School, H. W. Lyford, C. S. Emmerton, E. C. Larrabee, L. D. Pettingill, A. B. Woodis, Mrs. Ward, Alfred Ware, W. S. Messervy, B. H. Silsbee, George A. Newhall, John Meiklejohn.

HONEY.—George D. Glover, B. R. Symonds.

**LIBRARY.**—The additions during the year now closed are as follows:—

<i>Donations.</i>			
Folios, . . . . .	1	Pamphlets and Serials, . . . .	4,511
Quartos, . . . . .	29	Almanacs, . . . . .	39
Octavos, . . . . .	333		
Duodecimos, . . . . .	110	Total, . . . . .	4,550
Sexdecimos, . . . . .	67	Total of bound volumes, . . .	540
Total, . . . . .	510	Total of donations, . . . . .	5,090

<i>Exchanges.</i>			
Quartos, . . . . .	3	Pamphlets and Serials, . . . .	897
Octavos, . . . . .	110	Total of bound volumes, . . . .	115
Duodecimos, . . . . .	2		
	—	Total of Exchanges, . . . . .	1,012
Total, . . . . .	115	Total of Donations, . . . . .	5,090
		Total, . . . . .	6,102

Of the total number of pamphlets and serials, 1,324 were pamphlets and 4,084 serials.

The donations to the Library for the year have been

received from one hundred and fifteen individuals and seven societies and public bodies.

The exchanges have been received from ninety-nine societies and incorporate bodies, of which sixty-nine are foreign.

From the editors of the "American Naturalist" fifty-one serial publications.

In this connection the Librarian would state that there is a box or shelf catalogue of the books in the upper hall; an accession catalogue, being a full list of the additions to the library, chronologically arranged, and an alphabetical catalogue of a large portion of the library. A full alphabetical catalogue of all the books and pamphlets would be a great desideratum and would facilitate very much the duties of the students and all others who may have occasion to consult the library. The early attention of the Institute is particularly requested to the consideration of this subject.

The arrangement of the manuscripts has been completed during the past year. All the manuscript papers are now carefully assorted and placed either in bound volumes or in packages, labelled on the back so that any one can ascertain whether any desired manuscript is among them without removing them from the shelves. It would be a great advantage if this arrangement could be kept up with all manuscript papers as they are brought in, for nothing seems more useless than to keep them packed away in closed drawers and in obscure corners out of sight. Our manuscripts are now often consulted by genealogists and others, and much gratification has been expressed at the manner in which a portion of them have thus been made available.

MUSEUM.—Many valuable specimens in Natural His-

tory have been given during the year and are on deposit with the Trustees of the Peabody Academy of Science, in accordance with previous arrangements. Several of these specimens have been mentioned at our meetings as contributing to the knowledge of the natural history of this county. All have been duly acknowledged to the several donors. In addition to the above several interesting specimens of an historical character have been deposited in the rooms of the Institute, and contribute very much to the interest and value now attached to the antiquarian and historical portion of the museum.

Several paintings of considerable merit and other works of art have been presented. These, in addition to those previously in the room of the Institute, will form a nucleus around which ere long it is hoped that a museum of fine arts will be formed, and that the requisite additional accommodations will be furnished by the friends of culture and of art, to enable the Institute thus to accomplish in a fitting manner this long cherished object, or at least to make good progress in this direction.

**FINANCIAL.**—The Treasurer's Report shows an increase in the annual income; yet additional means are requisite to perform in a fitting manner the various duties which the community may reasonably expect.

#### DEBITS.

##### *General Account.*

Athenæum for rent and Librarian, . . . . .	\$ 350 00
Salaries, \$813 64; Coal, \$178 00; Gas, 110.86, . . . . .	1,102 50
Lectures and concerts, . . . . .	4,097 45
Publications, . . . . .	1,216 92
Express, \$54.88; Postage, \$18.58, . . . . .	73 46
Insurance, \$40; Gas Fixtures, \$68.50, . . . . .	108 50
Stationery, \$20.64; Printing, \$13.92; Collecting, \$4.05, . . . . .	38 61
Sundries, . . . . .	13 52
Cash to balance, . . . . .	182 68
Amount carried forward, . . . . .	\$7,183 64

Amount brought forward, . . . . . \$7,183 64

*Historical.*

Books, \$41.50; Binding, \$66, . . . . . 107 50

*Natural History and Horticulture.*

Binding, \$50; Horticultural exhibitions, \$295.47, . . . . . 345 47

\$7,636 61

CREDITS.

*General Account.*

Dividends Webster Bank, . . . . . \$35 00

Assessments, \$1,275; Publications, \$447.22, . . . . . 1,723 22

Miscellaneous, \$35.76; Life Memberships, \$60, . . . . . 95 76

Athenæum, proportion of coal, and janitor, . . . . . 164 00

Lectures and concerts, . . . . . 4,594 74

Cash at beginning of year, . . . . . 202 42

*Historical.*

Dividends Naumkeag Bank, . . . . . 20 00

*Natural History and Horticulture.*

Div. Port., Saco and Ports. R. R., \$20; Lowell Bleachery, \$72, . . . . . 92 00

Horticultural Exhibitions, . . . . . 330 47

*Davis Fund.*

Coupons Burlington and Missouri River R. R. Bonds, . . . . . 140 00

Coupons Dixon, Peoria and Hannibal R. R. Bonds, . . . . . 240 00

\$7,636 61

PUBLICATIONS.—The BULLETIN has been continued in monthly numbers, giving full reports of the doings of the Institute and abstracts of the papers read at the meetings; this makes an annual volume of from one hundred and seventy-five to two hundred pages. Vol. xii, Nos. 1 and 2 of the "Historical Collections" have been printed; it is expected that Nos. 3 and 4, completing the volume, will be issued during the present year, 1874.

During the year two schools from one of the towns of the county have visited the city for the purpose of enabling the scholars to see the valuable and instructive collections that our cabinets contain. This certainly carries out one of the first objects of the society, the dissemi-

nation of scientific and useful knowledge in the county of Essex, and it is desirable that this method be continued.

Hastily running over the year's work, we find the society in as prosperous a condition as ever before, and a decided success has attended the duties of each of the departments, divided among more persons and giving each the opportunity to do their part greater justice. But diverse as are the departments of the society, it must not be forgotten that there is underlying a grand object to be consummated by the operations, that besides working to make any department a success, or to form a great library or collection, we are to do our share towards keeping up the standard that is expected of every New England city, morally, socially and scientifically.

#### OFFICERS ELECTED

for the year ensuing and until others shall be chosen in their stead :—

*President.*

HENRY WHEATLAND.

*Vice Presidents.*

*Of History*—A. C. GOODELL, JR. *Of Horticulture*—WILLIAM SUTTON.

*Of the Arts*—D. B. HAGAR. *Of Natural History*—F. W. PUTNAM.

*Recording and Home Secretary.*

JOHN ROBINSON.

*Foreign Secretary.*

A. S. PACKARD, JR.

*Treasurer.*

HENRY WHEATLAND.

*Librarian.*

WILLIAM P. UPHAM.

*Superintendent of the Museum.*

CALEB COOKE.



*Curators of Historical Department.*

W. P. Upham, M. A. Stickney, John Robinson.

*Curators of Natural History Department.*

H. F. King, G. A. Perkins, William Neilson.

*Curators of Horticultural Department.*

Caleb Cooke, D. M. Balch, W. P. Andrews.

*Curators of Department of the Arts.*

C. H. Higbee, James A. Gillis, George M. Whipple.

*Lecture Committee.*

James Kimball, George Perkins, William Northey, E. C. Bolles,  
A. H. Johnson.

*Finance Committee.*

John C. Lee, Jas. Upton, Geo. D. Phippen, Jas. O. Safford.

*Field Meeting Committee.*

A. W. Dodge, E. N. Walton, Caleb Cooke, N. A. Horton,  
Alfred Osgood.

*Library Committee.*

J. G. Waters, E. B. Willson, Geo. F. Flint.

*Publication Committee.*

A. C. Goodell, Jr., F. W. Putnam, R. S. Rantoul,  
Henry M. Brooks, E. S. Atwood.

William Agge, of Salem, was chosen a resident member.

Mr. F. W. PUTNAM exhibited a fish spear found in a field in Danvers and presented to the museum by Mr. W. A. Brookhouse, of Danvers.

Rev. E. B. WILLSON announced his memoir of the late John Lewis Russell as ready for publication ; referred to the committee on publications.

Adjourned.

## REGULAR MEETING, MONDAY, MAY 18, 1874.

MEETING this evening at 7.30 o'clock. The President in the chair.

CHARLES C. PERKINS, Esq., of Boston, after an introduction by the President, said that he cheerfully responded to an invitation from the Essex Institute to give

## A TALK UPON ART.

He was glad that the society had entered into this field, and that exhibitions were in prospect and that an art museum was contemplated. After a few introductory remarks, he contrasted the technically perfect, but priest controlled and conventional art of Egypt, with the free, outspoken, ideally beautiful art of Greece; pointed out the undoubted influence of the east upon early Greek art, and traced its history from rude beginnings to the perfect conclusions of the Periclean period. After Greece was enslaved and despoiled by the Roman generals, art took up its abode on the banks of the Tiber, and heightened the splendors of the imperial city. A Greco-Roman school flourished there for a time, and after gradual decay died out altogether in the fourth century, when Constantine transplanted the seat of the empire to the shores of the Bosphorus, taking with him the best artists, artificers and builders to embellish his new Capitol. Oriental influences, working at Constantinople upon Greco-Roman traditions, brought thither by the followers of Constantine, produced the Byzantine school. This reacted upon Italy through Ravenna, the capital of the Exarchs, and through the Greek artists who took refuge there from the rigors of the Iconoclastic war in the eighth century, and those who followed them in the twelfth.

The successive invasion of the Italian peninsula by the

Goths (who had no art of their own, but who, through their king, Theodoric, protected the remains of ancient art from destruction), and of the Lombards (whose queen Theodelinda employed Italian architects, sculptors and painters to build and decorate the Basilica and Royal Palace at Monza), kept art traditions alive. These were further sustained by the Comacine masters, a body of Free Masons to whom the Lombards granted special privileges, and by the patronage and encouragement given by Pope Hadrian, and his friend the emperor Charlemagne, at Rome. During the Lombard period, Italian art, such as it was, was influenced by the east through Ravenna, where Byzantine artists built and decorated the splendid Basilicas of San Vitale, S. Apollinare, etc., etc., with mosaics; by Rome, which asserted her never dying power through the permanence of those classical traditions which continued all through the dark ages to assert their strength, in the architectural style known as the Romanesque or debased Roman, a style that yielded only partially to the Gothic (which never got a firm foothold in the Italian peninsula) and in that revival of classic elegance in the arts and letters called the Renaissance, which began about the middle of the fourteenth century, and culminated in the fifteenth.

Before the year 1000 the end of the world was anticipated, the arts had declined to the lowest pitch of degradation. From this they were raised in the thirteenth century by Niccola Pisano, the true father of the revival of architecture and sculpture, by Cimabue, who began the emancipation of painting from Byzantine thralldom, and by the great Giotto, who died in 1336, after having founded a school of religious art whose mystical element was developed to the highest degree by the saintly Fra Angelico in the early part of the succeeding century.

The recovery of the long buried art treasures, the formations of collections of ancient gems and marbles, by the Medici and their contemporaries, the passionate love of the antique in all forms which distinguished the Renaissance period, then combined to produce a golden age, which found its chief centre at Florence. Here Brunelleschi, Ghiberti, Donatello and Masaccio lived and worked, and produced masterpieces of architecture, sculpture and painting. These artists shed a lustre upon the reign of Cosmo de Medici, as did Leonardo de Vinci and Fra Bartolomeo and Michel Angelo upon that of Lorenzo the Magnificent.

To Michel Angelo and Raphael, in whom the glories of Italian art culminated, the lecturer could only allude in the brief time at his disposal, but he concluded with an offer to speak of them at fitting length at some future time, if desired.

Many of the illustrations were of the world famous pictures, statues, frescoes, bronzes, sarcophagi, etc., in the renowned art museums, churches and other depositories of art in Italy and Germany, and were very perfectly presented by the aid of the calcium light under the skilful manipulation of Mr. J. W. Black, of Boston. The progress of art from the earlier of the great masters to Raphael and his compeers were traced very instructively, and the characteristic differences of the masters of the several schools and periods were briefly but comprehensively described.

Adjourned.

# BULLETIN

OF THE

## ESSEX INSTITUTE.

---

---

VOL. 6.

SALEM, MASS., JULY, 1874.

NO. 7.

One Dollar a Year in Advance. 10 Cents a Single Copy.

---

---

### FIELD MEETING AT IPSWICH, WEDNESDAY, JUNE 3, 1874.

THE first field meeting, the present season, took place this day in the town of Ipswich, most of the party going in the first, and others taking some of the later trains. It is now several years since a field meeting has been held in this old shire town, formerly the place where several of the courts held their regular sessions each year. The county buildings are now confined to the house of correction and the county insane institution, on the banks of the Ipswich river—the old court house having been taken down, and the old probate court house having since been given over to Odd Fellowship and the public postal service. Some forty years since, when the old stage coach was the only public conveyance, the town had two public houses, with one or two of lesser note, which is more than can be summed up at the present day. Ipswich has a public library, the gift of the late Mr. Augustine Heard. Though this one is a comparatively modern institution, semi-public libraries are not altogether new to



the town, which possessed a "social library" as early as 1791, and later a few others of less importance. The Ipswich Female Seminary,\* for thirty years under the care of Rev. and Mrs. J. P. Cowles, has been long a celebrated and well known educational institution. One of the most substantial public works in the town is the Choate Bridge across Ipswich river, which was built of stone in 1764, and cost one thousand pounds, one-half paid by the town, the other by the county; named for Hon. John Choate, who was on the committee and superintended the erection. It is strong and neat, having two arches, with one solid pier in the bed of the river.

Among the churches in the main part of the town are two Orthodox Congregational, one Methodist, and an Episcopalian. The woollen and hosiery business is the leading industry of the town (at least of a mechanical nature) and all appear to be prosecuted with success.

---

\*The Ipswich academy commenced in 1826. A company of gentlemen erected the building, who became incorporated in February, 1828. The first teacher was Rev. Hervey Wilbur, who continued about one year, and was succeeded by Mr. James W. Ward, who was the instructor from May, 1827, to March, 1828. During the above period the school was open to children of both sexes.

Miss Zilpah P. Grant, assisted by Miss Mary Lyon, previously in charge of an academy in Derry, N. H., took the school and by their joint and indefatigable labors soon built up one of the most flourishing and popular female seminaries in New England. Miss Lyon left Ipswich in 1834 to found a permanent academy for females, with buildings, library, apparatus and endowments. After three years of unsurpassed effort she succeeded in establishing the school at South Hadley, now known as the Mount Holyoke Female Seminary, which was opened Nov. 8, 1837, and Miss Lyon was in charge until her death, which occurred March 5, 1849.

Miss Grant retired in April, 1839, and two and a half years later was married to William B. Banister, a lawyer in Newburyport. She is still living at Newburyport, a widow, aged 80, in good health.

Miss Mary E. Ellison, a teacher in Prof. Abbot's school in Boston, and for some time previous principal of a seminary at Plymouth, N. H., was appointed to succeed Miss Grant. She afterwards married Rev. Dr. Dimmick, of Newburyport, and is still living, a widow, at Newburyport. Miss Little at first was substitute and afterwards Miss Yeaton succeeded Miss Grant in the direction of the school, the three together were there only three years. The school was then closed until May, 1844, when the present principals, Rev. John P. and Mrs. Cowles, entered upon their duties. Mr. Cowles, Jan. 29, 1849, purchased the land and buildings, and the corporation was soon after dissolved. The school is a private institution under the corporate name.

The party found something to interest them in the general characteristics here mentioned, and various groups wandered forth in different directions, some in rambling over the hills in search of flowers, in visiting the library and the old burying ground; a few went down the river in boats to explore the shell heaps near the light-house and in the marshes adjoining.

Lunch was served in the town hall at half-past one, at which the young ladies of the seminary kindly and gracefully volunteered their services.

At 3 P. M. a meeting was held in the First Church. PRESIDENT in the chair.

In the absence of the SECRETARY, Mr. F. W. PUTNAM was requested to act. Records read.

The acting SECRETARY announced the following correspondence :—

From F. E. Abbot, Boston, May 9, 15; William P. Andrews, May 16; George L. Balcom, Claremont, N. H., May 21; N. Cleaveland, Westport, Conn., March 24; Henry B. Dawson, Morrisiana, N. Y., Feb. 23; Samuel E. Dawson, Montreal, May 6; D. C. Gilman, Oakland, Cal., May 21; Frank E. Hotchkiss, New Haven, Conn., May 4, 18; Rufus King, New York, May 26; Thomas Morong, Ipswich, May 27; William Neilson, May 15; William Northey, May 14; Ogden & Brooks, New York, May 26.

The LIBRARIAN reported the following additions :—

*By Donation.*

- ABBOT, FRANCIS E., Boston. The Index for 1870, 1871, 1872, 1873. 4 vols. folio.  
 APPLETON, W. S., Boston. Genealogy of the Appleton Family. 8vo pamph. Boston, 1874.  
 BROOKS, W. G., Boston. Miscellaneous pamphlets, 14.  
 GILMAN, D. C., Oakland, Cal. Biennial Report of the Regents of the University of California, 1872-73. Proceedings of the Agassiz Memorial Meeting, Dec. 22, 1873, at Mercantile Library Hall. Remarks of Prof. D. C. Gilman on Louis Agassiz as a Teacher of Science in America.  
 GREENE, SAM'L A., Boston. Miscellaneous pamphlets, 23.  
 HUNT, T. F. Christian Family Casket, 1846. 1 vol. 8vo. Family Circle, 1849. 1 vol. 8vo. Miscellaneous volumes, 4. Overland Monthly, 47 numbers. Miscellaneous pamphlets, 11.  
 JOHNSON, SAMUEL. A Discourse delivered at the Parker Memorial Meeting House, March 15, 1874, by donor.  
 MASS. SOCIETY OF THE CINCINNATI. Memorials of the. 1783-1873. By Francis S. Drake. 1 vol. 8vo. Boston, 1873.

- MORSE, E. S. Miscellaneous pamphlets, 6.  
 PICKERING, CHARLES, of Boston. U. S. Exploring Expedition for 1838. 1839, 1840, 1841, 1842. 1 vol. 4to. Boston, 1853.  
 U. S. SURGEON GENERAL'S OFFICE. Catalogue of the Library of the Surgeon General's Office. 3 vols. 4to. Washington, 1874.  
 WATERS, J. LINTON. Miscellaneous pamphlets, 6.  
 U. S. PATENT OFFICE. Official Gazette, Apr. 14, 21, 28, May 5, 12, 1874.

*By Exchange.*

- BOSTON PUBLIC LIBRARY. Superintendent's Monthly Report for April, 1874.  
 BOWDOIN COLLEGE. Seventy-second Annual Catalogue for 1873-74.  
 MINNESOTA HISTORICAL SOCIETY. Collections of. Vol. iii, Pt. ii, 1874.  
 N. E. HISTORIC-GENEALOGICAL SOCIETY. Memoir of Hon. Edmund P. Tilton. By E. Holden. Boston, 1874.  
 PHILADELPHIA ACADEMY OF NATURAL SCIENCES. Journal of. New Series, Vol. viii, pt. I. April, 1874.  
 PHYSIKALISCH-MEDICINISCHE GESELLSCHAFT IN WÜRZBURG. Verhandlungen, Neue Folge, v Bd. 4 Heft. 1874.  
 SOCIÉTÉ MALACOLOGIQUE DE BELGIQUE. Annals, Tome vi, vii. 1871-72. 2 vols. 8vo. Procès-Verbaux Des Seances de la. Tome ii, 1873. 1 vol. 8vo.  
 SOMERSETSHIRE ARCHÆOLOGICAL AND NATURAL HISTORY SOCIETY. Proceedings for the year 1872. Vol. xviii. 1 vol. 8vo. Taunton, 1874.  
 PUBLISHERS. Forest and Stream. Gardener's Monthly. Gloucester Telegraph. Hardwicke's Science Gossip. Haverhill Gazette. Ipswich Chronicle. Lawrence American. Lynn Reporter. Lynn Transcript. Medical and Surgical Reporter. Nation. Nature. Peabody Press. Salem City Post. Salem Observer.

The PRESIDENT, in alluding to the pleasant rambles about this ancient town and the several places of interest, some to the student of nature and others to the local historian and antiquarian, said that many Salem people had sprung from Ipswich, and consequently were always gratified in revisiting the old homesteads where their ancestors had resided years long since, and whose remains are in the old cemeteries. He mentioned several donations to the museum, specifying a fine specimen of *Pecten magellanicus* taken at Beverly Bar a few days since by Laban S. Osborne, of Salem, and called upon

Prof. E. S. MORSE, of Salem, who gave an account of this pecten, a rare species on the shores of Essex county, describing the anatomical structure and comparing the same with other mollusks. The special subject of Mr. Morse's remarks was

## THE FERTILIZATION OF FLOWERS,

particularly upon the aid afforded by insects to the process. The bee seeks the flower for honey, which it is commonly supposed is placed there merely to afford him his food. On the contrary, the honey, or rather nectar—for honey, correctly speaking, is the nectar of the flower taken into the stomach of the bee, where it undergoes a change and is then regurgitated—is a sort of reward for the help the bee has rendered the plant. Many, indeed recent investigations show that most flowers could not be fertilized, hence could produce no seeds, and consequently the species would cease to exist without the help of insects. The floral organs and their functions were shown and illustrated by drawings upon the blackboard. The stigma, or top of the central organ, the pistil, must receive the fine fertilizing dust, the pollen, from the stamens, or the fruit or seed at the bottom of the flower cannot be perfected. This dust fertilizes the ovaries in which the seeds form. In some flowers the stamens and pistils are quite near together, in others the pollen placed in such a position that it could never reach the pistil without the help of insects. The bee or insect is attracted by the odor of the nectar, and in searching for it, brushes rudely against the stamens and carries the pollen away upon its body, and going to another flower chances to touch the stigma, and so leaves it where it will fertilize the seed. In the laurel the stamens are pressed within the petals and only dislodged by force, when they spring out with a snap and touch the pistil in the centre of the flower. Insects supply this force. In some flowers the pistil, or fruit-bearing organ, makes its appearance one day, and withers away, and the pollen does not come until the day following, quite too late to be of any use in fertilizing. If all the plants of this species flowered on the same day



it would speedily become extinct, but they blossom upon different days, and insects convey the pollen of one to the pistil of another. In some plants the relative size of the organs varies in different individuals so much that they almost seem to belong to different species, and this facilitates the work of the insects. An example of an orchid was given, which has a nectary like a tube five or six inches long, with a drop of nectar at the bottom; at the top, upon a broad petal, are two small button-like projections, which are the pistils, but the stamens are nowhere visible. The pollen is found in little pockets on the opposite side of the petal, connected with the button by a thread running through. This flower could never be fertilized without the action of insects. The nectary is long and narrow and it is only a certain large and brilliant species of moth, which uncoils its long tongue and in reaching the nectar strikes with its head the little buttons at the top of the tube, and as they are covered with a sticky substance, bears them away upon its head, with the thread and packet of pollen attached. As these threads dry they bend forward, and are just in position to touch the stigmatic surface upon the next flower he visits. The help of insects is necessary even where the organs are near each other in the same flower, for Darwin has found by investigation that in many flowers self-fertilization is impossible; the pollen to be efficient must be carried to the pistil of another flower. All flowers having a bright colored corolla, or fragrance, are fertilized by insects. Others, and those like the pine, having staminate and pistillate flowers on different trees, are fertilized by the action of the wind. The insects visit only the most brightly colored and perfect flowers of a species, hence these only bear seed and so the principle of natural selection is constantly operating.



Prof. Morse gave some facts concerning what might be called carnivorous plants, those which absorb and assimilate the juices of insects, and even of pieces of meat. The leaf of the fly-trap has a row of spines on the edge, and some fine hairs at the centre, with a substance attractive to insects upon them. As soon as an insect touches these hairs the leaf closes, the spines interlock and hold him a prisoner. The same action is observed on touching the hairs with a piece of meat. Other plants present similar phenomena. This was a new field of investigation and might lead to important results.

For the above facts he gave full credit to Darwin and Gray, referring also to the observations of Mrs. Treat.

Vice President F. W. PUTNAM was next introduced, and gave an account of the shell heaps at the light-house and at Eagle Hill, and alluded to the remains of the various animals that had been found in these deposits. He appealed to the residents of Ipswich who perhaps may explore the heaps, to be watchful for human bones, as the late discoveries by Prof. Wyman in the shell heaps in Florida had proved that cannibalism existed there, and perhaps it may be found that our New England Indians also were given to feasting on human flesh, though, as yet, it had not been proved that they were guilty of that practice.

Mr. Putnam then gave an account of a singular fish that had recently been presented by the Proctor Brothers of Gloucester. This fish, which had been named by Bloch, *Chauliodus Sloani*, heretofore had been found only in the Mediterranean. The present specimen was taken from the stomach of a cod caught on George's Banks, and was a most interesting addition to our fauna.

Rev. THOMAS MORONG, of Ipswich, gave a brief history of the public library in Ipswich, the gift of Augustine Heard, Esq., and paid a deserved tribute to the public spirit and generosity of its founder.

Mr. Heard, son of Hon. John Heard, was a native of Ipswich, and was born March 30, 1785. He was for many years a shipmaster and a tea merchant at Hong Kong, China, in which business he acquired a large fortune. He established the house of Augustine Heard & Co., in China, which has been continued by his nephews in his name and at present is one of the richest and most prosperous in the China trade.

After his retirement from business he gave much attention to benevolent objects, and for years it had been his intention to make some substantial gift to the place of his nativity. Finally it assumed the shape of a public library, which he thought would be most useful to his fellow citizens. With this purpose in view he planned the building which stands near by. It was completed in the autumn of 1868. Mr. Heard lived just long enough to see its completion and transfer it to the board of trustees\* appointed by himself. He died at his residence in Ipswich, Sept. 14, 1868, aged 83 years, unmarried.

The building (50 by 40 feet) is two stories in height with a main room for books below and a reading room and a picture gallery above. It was dedicated to public use on Tuesday, March 9, 1869. Addresses were made on the occasion by George Haskell, chairman of the board of trustees, Rev. J. P. Cowles and Rev. Thomas Morong.

The land, building and library cost about fifty thousand dollars; to this Mr. Heard added a fund of ten thousand dollars, the income of which pays the running expenses, making the sum of sixty thousand dollars, which a gen-

---

\*Trustees are Zenas Cushing, Joseph Ross and George Haskell.

erous donor bestowed upon the town as a free public library. As modest as he was generous, he forbade its being called after his own name; and so it is known only as the "Public Library of Ipswich." The use is open to all the inhabitants of Ipswich on very simple conditions.

Mr. Heard put in the building a library of thirty-five hundred volumes of well selected, standard works. To this number his heirs added after his death twenty-five hundred volumes, which, with about thirteen hundred volumes bestowed by another donor, make seven thousand, three hundred volumes, constituting the present library.

The only lack in this donation was the means of increasing the library and of replacing the books worn out, but this deficiency has been recently supplied by another son of Ipswich, Prof. Daniel Treadwell,\* of Harvard University. Prof. Treadwell had long contemplated the erection of a public library in Ipswich, and had made a will to that effect, when he found himself anticipated by his friend, Mr. Heard. Accordingly he altered it and made his donations to the Heard library. By his death in 1872 the trustees† have come into the possession of funds amounting to about ten thousand dollars, which will eventually be raised by residuary legacies to nearly twenty thousand. In addition to this Prof. Treadwell bequeathed his library of about thirteen hundred volumes, a number of valuable oil paintings, copies of the old masters, various medals bestowed upon him for mechanical inventions, coins and models and all his manuscripts, to the library.

---

\*Daniel Treadwell was born at Ipswich in 1791. Rumford Professor and lecturer on the application of the sciences to the useful arts in Harvard University from 1834 to 1845. Died at Cambridge, Feb. 27, 1872.

† The Trustees of the Treadwell fund are the Trustees of the Public Library, the pastor of the First Church and the master of the Grammar School, Ipswich. The latter two, at present, are Rev. Thomas Morong and Issachar Lefavour.

By this timely endowment the means are supplied for the indefinite increase of the library, or the establishment of a natural history collection or for any other literary or scientific object which may be advantageous to the intellectual growth of the town.

Already the benefits of the library are beginning to be manifested, as on the average eight thousand volumes are yearly drawn out and read by the inhabitants.

Historical documents, and books connected with family and town records, are finding their way into the library; and it is hoped that deposits of this kind will multiply until all those invaluable treasures, which are in the possession of old families and liable to perish, will be placed where they will not only be safe, but accessible to future historians.

Mr. Morong in the course of his remarks alluded to other funds held in trust for educational purposes, the availability of which is much lessened in consequence of the terms and conditions of the same.

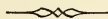
Dr. WHEATLAND followed Mr. Morong and spoke of the importance of inserting a clause in instruments of trust created either by bequest or otherwise, for public uses, prescribing the terms for modifying the conditions so as to meet the wants of those to whose uses the same may have been established, and cited several instances corroborative of the statement of the previous speaker, on the impaired usefulness of several trust funds for educational purposes.

The following vote of thanks was offered by Mr. Putnam, and after being seconded by Mr. Kimball, was unanimously adopted:—

*Voted*, That the thanks of the Essex Institute be ten-

dered to the proprietors of the First Congregational Church for the use of their building, in which to hold this meeting, to the selectmen of the town of Ipswich for the use of the town hall, to the Rev. Mr. Morong, the young ladies of Mrs. Cowles' school, and to other friends for their kind attentions and courtesies shown to the Institute this day.

Remarks were then made by Mr. Morong, after which the meeting adjourned to meet on the next day at noon, in the rooms of the Institute.



#### REGULAR MEETING, MONDAY, JUNE 15, 1874.

MEETING this evening at 8 o'clock. The PRESIDENT in the chair.

The propriety of taking suitable notice of the centennial anniversary of the meeting of the legislature of Massachusetts in Salem, Oct. 7, 1774, and resolving themselves into a provincial congress was brought to the notice of the meeting, and, after some discussion, on motion of Mr. James Kimball it was

*Voted*, That a committee of three be appointed to consider the subject and to report at the meeting on Monday, July 6.

MESSRS. JAMES KIMBALL, A. C. GOODELL, JR., and W. P. UPHAM were appointed. The PRESIDENT was afterwards added.

James W. Lyon, of Salem, was elected a resident member.

Adjourned.



FIELD MEETING AT TOPSFIELD, THURSDAY,  
JUNE 18, 1874.

THE second field meeting of the season was held this day. The shower of the early morning induced many to infer that the meeting would be postponed, and for this reason the number in attendance was not so large as usual; but in that respect only was it inferior to the customary gatherings on such occasions. An extra train was courteously furnished by the Eastern railroad to take the party to Danvers, at which place a connection was made with the Danvers and Georgetown (under the management of the Boston and Maine) railroad, and upon arrival at Topsfield a cordial welcome was extended by the citizens. Several carriages were in waiting to convey parties to the various points of interest, and guides were in readiness to direct attention to such localities as would be attractive to visitors. The village is situated upon a level plain, entirely surrounded by hills, and the views from any one of them are beautifully picturesque and charming. There are many ancient buildings in the town that were the homes of historical characters, or were the scenes of prominent events of more or less historical importance. Hood's pond is a lovely sheet of water, and its shores attracted considerable attention. Ipswich river, which passes through the town, is a beautiful stream, and upon its waters or borders one small party spent all the time devoted to the rambles. The old Capen House was an object of interest, and its old style of arrangement and finish was examined as a curiosity. Also the old Gould house (now a barn) owned by Frederick Elliott, which is probably more than two hundred years old, older, even, than the one previously named. Its huge

oak timbers (13 by 16 and 8 by 15 inches), the brick lined walls and the old-fashioned lathing were well preserved. A passing call upon Mr. Francis Curtis, whose store of skulls, skeletons, skins and Indian relics was interesting; and a visit to the old copper mine, worked experimentally but not successfully, were among the attractions noticed by the party, who made a circuit through the edges of Boxford and Danvers. The old cemetery was visited by many; in this enclosure lie the remains of a large number of men who are distinguished in our annals. The grave of Hon. Asahel Huntington, ex-président of the Essex Institute (1861-1865) is in this cemetery, and the members felt a deep interest in it on that account. The new town hall, when completed, will be a most convenient municipal building, and a great ornament to the town.

The several parties, returning by noon, partook of their collation in Union Hall, where an abundant supply of tea and coffee was furnished by the good people of the town.

The afternoon session for the reports and addresses was held in the Methodist church, and the citizens attended in goodly numbers. The President, H. WHEATLAND, in the chair. In the absence of the Secretary, Mr. Robinson, Mr. N. A. HORTON was elected secretary *pro tem*. Records read.

The SECRETARY announced the following correspondence:—

From Charles H. Baker, Annapolis, Md., June 15; C. J. P. Floyd, Topsfield, June 15; Rufus King, New York, July 10; H. W. Lowry, Cincinnati, Ohio, June 9; Ogden & Brooks, New York, June 9; D. Perkins, Cleveland, Ohio, June 1; Charles W. Richardson, June 10; George Russell, Boston, June 12 and 13; Jacob H. Studer, Columbus, Ohio, June 5; Angsburg, Naturhistoricher Verein, Feb. 20; Buffalo Historical Society, June 10; Boston Athenæum, June 6; Danzig, Die Naturforschende Gesellschaft, Jan. 19; Darmstadt, Verein pers Erdkunde, April 1; Hague, The Entomological Society of the Netherlands, Sept. 26, 1873; New Jersey Historical Society, June 5, 9; New York Historical Society, June 10; New York State Library, Albany, June 15; Ohio Historical and Philosophical Society, June 8, 11; Rhode Island Historical Society, June 6; Rega, Der Naturforscher, Verein, Oct.

31, 1873; U. S. Department of Agriculture, June 11; Washington Smithsonian Institution, April 18, May 2; Worcester Lyceum and Natural History Association, June 6.

### The LIBRARIAN reported the following additions :—

Columbus, Ohio, its History, Resources and Progress. By J. H. Studer. 1 vol. 8vo.

The Symmes Memorial. By John A. Vinton. 1 vol. 8vo.

#### *By Donation.*

BOSTON ATHENÆUM, Catalogue of the. 1807-1871. Pt. I. 1 vol. 4to. Boston, 1874.

KIMBALL, JAMES. Columbian Centinel for 1793, 1794, 1794-5, 1795-6, 1796-7, 1797-8, 1798-9. 7 vols. folio.

OFFICE OF THE CHIEF OF ENGINEERS. Report of the Sea-Water and Exposure upon the Iron Pile Shafts of the Brandywine Shoal Light House. By John D. Kurtz and M. R. Brown.

PALFRAY, C. W. The Phila. Inquirer, 1871, 72, 73. The Knickerbocker Magazine, 52 numbers. New England Magazine, 37 numbers. U. S. Service Magazine, 16 numbers. Miscellaneous Serials, 12.

SMALL, A. D. Boston Journal of Chemistry. Vols. 3, 4, 5. 1868-71. Annual Reports of the Redwood Library and Athenæum, 1870, 1871, 1872.

U. S. NAVAL OBSERVATORY. Instructions for Observing the Transit of Venus, Dec. 8-9, 1874.

U. S. PATENT OFFICE. Official Gazette for May 26, 1874.

WILDER, M. P., Boston. Proceedings of the Fourteenth Session and Quarterly Centennial Celebration of the American Pomological Society held in Boston, Sept. 10, 11, 12, 1873.

WILLIAMS, Mrs. C. F. U. S. Coast Survey, 1852, 1854. 2 vols. 4to. Subscribers to the Life of Geo. Washington. 1 vol. 4to. Remarks on the Navigation to the China Sea. 1 vol. 4to. Grammar of the Malay Tongue. 1 vol. 4to. London, 1800. Columbian Centinel, 1797, 1801, 1802, 1803, 1804, 1805, 1806, 1807. Christian Register for 1821. 1 vol. folio. American Pilot. 1 vol. folio. Maps. 3 vols. folio. Mariner's Guide. 1 vol. 12mo. London, 1765. The Sepoy Revolt. 1 vol. 8vo. The Shipowners' and Shipmasters' Directory. 1 vol. 8vo. London, 1847. Directory to the Port Charges of Great Britain and Ireland. 1 vol. 8vo. Weston's, Complete Merchant's Clerk. 1 vol. 8vo. London, 1762.

#### *By Exchange.*

AMERICAN ACADEMY OF ARTS AND SCIENCES, Boston. Proceedings of the. New Series. Vol. i. May, 1873-May, 1874. 1 vol. 8vo.

HISTORICAL SOCIETY OF PENNSYLVANIA. History of New Sweden. By Israel Acrelius. Translated from the Swedish by Wm. M. Reynolds, D.D. 1 vol. 8vo. Phila., 1874.

PUBLISHERS. American Journal of Science. American Naturalist. European Mail. Forest and Stream. Gardener's Monthly. Gloucester Telegraph. Hardwicke's Science Gossip. Haverhill Gazette. Ipswich Chronicle. Lawrence American. Lynn Reporter. Lynn Transcript. Medical and Surgical Reporter. Nation. Nature. Peabody Press. Sailors' Magazine and Seamen's Friend. Salem City Post.

The PRESIDENT, in his opening remarks, alluded to previous visits to this place, the first in April, 1834. The meeting was held in the Topsfield hotel, which stood on the Newburyport turnpike and was of considerable importance in the days of the old stage coach. On this occasion the organization of the Natural History Society, the parent society of the Institute, was completed, and may thus date the commencement of its active duties. The second in June, 1856, in the Topsfield Academy, and this suggests the propriety of having an historical account of this institution prepared and printed in the publications of the Institute. Is there not some one who will undertake this work? The third in 1860 and the fourth in 1868 in the church in which we are now assembled. In coming to Topsfield we therefore come under peculiar relations, somewhat as a graduate from one of our educational institutions returns to his *alma mater*.

In mentioning the recent donations to the museum, several having an historic interest, he also suggested the importance of collecting all relics which illustrate the characteristics of earlier times, and particularly pamphlets and manuscripts.

REV. JAMES H. FITTS, of Topsfield, was then called upon, and read some extracts from a paper which he had prepared, and which will be presented to the Institute, giving an account of "Robert B. Thomas, the maker of the Farmer's Almanac."

Mr. Fitts was formerly a resident of West Boylston, the home of Mr. Thomas, and the paper gave many interesting incidents of the Thomas family and of the profession of almanac making. He alluded to the competition existing between the publishers of Isaiah Thomas's New England Almanac and R. B. Thomas's Old Farmer's,

showing that the publishers in the last century were not impervious to personal claims to popular favor.

“How sad to think that now as then,  
The printers quarrel just like men!”

Mr. Fitts exhibited a complete file of the almanac from 1793 to the present year, remarking that several of the earlier numbers are exceedingly rare, and that of the year 1793 commands as high a price as ten dollars per copy. Isaiah's last number is dated 1803, although the series was continued by successors until 1822. Robert B. had been a school teacher and a book-binder previous to 1793, but from the commencement of his almanac he devoted almost exclusive attention to that. He died May 19, 1846, aged eighty years, and the work he had carried on for half a century is still continued in his name, Messrs. Brewer & Tileston being the present publishers. Mr. Thomas was a man of generous impulses; a hall erected by his bounty bears his name, and West Boylston people are proud of inviting strangers to visit Thomas Hall as one of the local “lions” of their town.

Mr. N. A. HORTON was reminded of a little story, and related the incident. During a long period of drought one season, people complained that the weather predictions of the Old Farmer's Almanack were not reliable, when one of the advocates of the old favorite explained that Mr. Thomas merely said, “Rain *may be expected* about this time,” and he claimed that that was the fact, thus flooring the impudent detractor.

Dr. JEREMIAH SPOFFORD, of Groveland, gave some curious personal recollections of the Old Farmer's Almanack, dating back to his childhood, fourscore years ago.



Mr. SAMUEL TODD, of Topsfield, was called upon, and he described a neighboring high ridge of red gravel, boulders and clay, bringing forward additional proofs (besides what he had advanced on a previous occasion) to the effect that this was a deposit brought hither on drifts of ice, and not a deposit in place.

Vice President F. W. PUTNAM described the fishes taken from Ipswich river, all representing one great group, including the pickerel, the sucker, the shiner, and the chub, and pointed out the characteristic differences of the several forms. He also described the wasp, and its habits in building nests and propagating and feeding the young, illustrating his remarks by nests collected.

Several Indian implements were placed upon the table, and Mr. Putnam also spoke upon that subject. A fine Indian mortar made of stone and found in Topsfield was presented by Mr. Samuel Todd.

Mr. B. P. ADAMS, of Topsfield, presented a curiously wrought specimen of stone, recently discovered at the town farm, remarking that it differed materially from the more common specimens in this vicinity, and requested Mr. Putnam's opinion of its origin.

Mr. Putnam said it seemed probable that this was an ornament or insignia of official position among the aboriginal dwellers of our continent, but this peculiar form is more frequent at the west, among the relics of the Mound-builders, than here at the east.

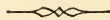
Mr. CHARLES J. PEABODY gave a brief history of Topsfield, whose Territory was once in possession of the Agawam Indians. He narrated incidents from the early settlement here by whites in 1639, down to modern times, alluding to the organization of the town under its present

name, copied from the Topsfield of England. Several disputes had arisen relative to the boundary lines by which Topsfield was divided from Boxford, Wenham and Ipswich, with curious incidents growing out of those disputes. In one instance the boundary passed directly through a house whose owner refused to pay his rates in either Topsfield or Ipswich, but when dunned by either town, would claim that he belonged in the other; Topsfield finally got rid of him by a change of the line so that the house was all in Ipswich. Mr. Peabody alluded to the spirit of liberty which had always been cherished by the people of Topsfield, whether in the days of the revolution, "when all the fighting men of the place were off to Charlestown," during the war of 1812-15, or in the dark days of the recent conflict.

After further remarks by Messrs. PHILLIPS, TODD, HOLMES and others, the following resolution, offered by Mr. E. N. WALTON, was unanimously adopted:—

*Resolved*, That the thanks of the Essex Institute be tendered to Messrs. Richard Phillips, C. T. P. Floyd, Thomas W. Pierce, Capt. Morgan, Charles Herrick, B. P. Adams, Benj. Poole, C. J. Peabody and other citizens of Topsfield for kind attentions during this visit, and also to the proprietors of the Methodist Church for the use of the meeting house.

Adjourned to meet at the rooms to-morrow (Friday) at noon.



ADJOURNED MEETING, FRIDAY, JUNE 19, 1874.

Was held this day at noon.

J. A. Allen of Cambridge, and James Coolidge of Salem were elected resident members.

# BULLETIN

OF THE

## ESSEX INSTITUTE.

---

---

VOL. 6.

SALEM, MASS., AUGUST, 1874.

NO. 8.

One Dollar a Year in Advance. 10 Cents a Single Copy.

---

---

### REGULAR MEETING, MONDAY, JULY 6, 1874.

MEETING this evening at 8 o'clock. The PRESIDENT in the chair. Records read.

The committee appointed to consider the propriety of commemorating the centennial anniversary of the meeting of the Provincial Congress in Salem, Oct. 5, 1774, reported:—

That they deem it proper and advisable to notice the event by an historical address, to be delivered on that day before the society.

*Voted*, That ABNER C. GOODELL, Jr., Esq., be invited to prepare and deliver the address.

After a discussion on this subject participated in by Messrs. E. B. Willson, C. Cooke, F. W. Putnam, W. P. Upham and others, it was

*Voted*, That the President be requested to appoint a committee of arrangements on the celebration.

Philip G. Skinner was elected a member.

# NOTES ON AN EXAMINATION OF FOUR SPECIES OF CHITONS, WITH REFERENCE TO POSTERIOR ORIFICES.

BY WILLIAM H. DALL.

## 1. *Stimpsoniella Emersonii* (two specimens).

The large and fine specimen from the Gulf of St. Lawrence presented a posterior and terminal anus of large size, but with the edges not elevated into a papilla. The head of an ordinary pin could be inserted into it without violence.

The orifices of the ovaries, bilaterally symmetrical, were situated just behind, and, as it were, under the shadow of, the last branchia on each side. There were two fenestræ on each side of the anterior, a little further towards the girdle, and a little larger than the posterior.

This species resembles in most particulars the *Symmetrogephyrus Pallasii* of Middendorf, and it would seem as if his ungainly subgeneric or generic name should be adopted. The hairs are precisely similar in both species, as are the branchiæ. The insertion plates also agree, according to Dr. Carpenter, who examined a series from a specimen obtained by me in the Aleutian Islands. The principal differences, beside the larger size of *Pallasii*, are as follows: In the latter the hairs are more closely set, the texture of the epidermis is thicker and harder, the points of the valves are more nearly covered, and the skin is smoothly rounded over the back, not showing anything of the form of the valves, as is the case in *Emersonii*. I think also the valves are smaller, in proportion to the size of the animal, in *Pallasii* than in *Emersonii*.

## 2. *Tonicella marmorea* Fabr.

This species showed a clearly defined posterior and terminal vent. The fenestræ of the ovaries were symmetrical on each side, but the branchiæ pass behind them and conceal them. They are very small, and I could not detect more than one on each side, though fresh specimens, not hardened and contracted by alcohol, might show more.

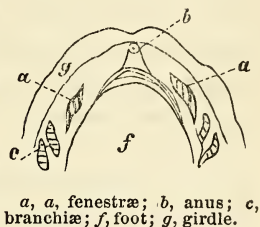
## 3. *Trachydermon albus* Lin.

The same remarks apply to this species. The vent was terminal, and on a papilla.

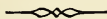
## 4. *Trachydermon ruber* Lin. Three specimens examined.

These specimens were much hardened by alcohol. Removing the plates from above and then the inner lining membrane, beneath the large and well filled ovaries the intestinal canal is seen, terminating in the median line posteriorly. From the outside the anus was not

perceptible in the smaller specimens. By carefully turning back the outer edge of the girdle in the largest specimen, after removing the posterior plates, but without touching the animal with the dissecting knife, the anus was perceptible, with a pellet of fæces impacted in the opening. It is exactly in the median line behind as in the annexed sketch, very small, and not on a papilla. It is also a little higher up than in the other species. The "cancellated space" noticed by Mr. Emerton (as per notice in *Ann. Mag. Nat. Hist.*, Mar., 1874) on each side behind the branchiæ is a fold or groove containing the ovarian fenestræ. There were in this specimen three fenestræ on each side, but according to Dr. Carpenter the number is variable, Prof. Verrill having counted from four to six in some specimens. These fenestræ in this species are more complicated than in most chitons which I have examined. I have never been able to satisfy myself that there is a true oviduct, and it may be that the ova are dehiscent in the perivisceral cavity and may be expelled through the fenestræ, as they are through the analogous "oviducts or segmental organs" of brachiopods.



The fact that the ovarian openings are not simple apertures, was noticed by me in dissecting chitons in 1869, but I am not aware that attention had been previously called to this fact *in print*. Their position had been previously known, but it is not uniform in all chitons. In some the fenestræ are close to the anus and single on each side, and it has been stated that the ovary of one side is sometimes abortive. This last I have not yet observed in any species which I have dissected.



#### FIELD MEETING AT WEST NEWBURY, THURSDAY, JULY 16, 1874.

THE meeting this day was very pleasant, and in many of its features different from the usual routine adopted on similar occasions. The forenoon rambles were not extensive, and the excursion on the river proved an acceptable substitute.



The 8.13 morning train from Salem took a goodly number of excursionists to Newburyport, who there embarked on board the barge "Queen of the Merrimack," which was towed by the powerful steam tug "Mattie Sargent" up the river to West Newbury, the place of meeting. The freshet had made a strong current, and the wind was ahead, hence the passage was not rapid; this seeming disadvantage was rendered acceptable, however, by affording an opportunity to get better views of the picturesque scenery on either hand. The banks of the river and the surrounding hills and slopes are characterized by symmetry and beauty. The river is navigable as far as Haverhill, which is about eighteen miles from Newburyport; and very attractive scenery is between these points. The Eastern Railroad bridge; the Amesbury chain bridge; the fine residence of Mrs. Huse, built and improved at great cost by Rev. Mr. Fletcher, the lecturer and writer on Brazil; the castle-like mansion on the eastern bank owned by Henry W. Moulton; the village at Salisbury Point, famous for hats and dory boats; the laurel grounds, which have furnished so much annual enjoyment to people of a philanthropic and progressive turn; the village at South Amesbury, and the Rock's Bridge, connecting East Haverhill with West Newbury, were among the more prominent objects which engaged attention, and elicited numerous inquiries.

West Newbury, as seen from the river, presents the appearance of a clean and thrifty farming town. It contains some good farms, and has always furnished an intelligent representation in the Essex Agricultural Society. The shoe business is carried on to some extent in the town, but the principal manufacturing element is in comb making.

In literature this town has sent forth one shining light,

second to few in this or any other country, Professor *Cornelius Conway Felton*,\* who was so long an ornament to Harvard College. He was born in West Newbury, and the old house in which he first saw the light is yet in existence, on the left of the road to Newburyport, not, as "Appleton's Cyclopaedia" erroneously says, "now Newbury." Old Newbury has honors enough of its own, without borrowing anything from neighboring towns. Prof. Felton achieved much in the department of Greek literature, and prepared both text books for preparatory schools and editions of classic Greek for colleges. Many of our readers owe much to him in the acquiring of a knowledge of the beautiful tongue of the Greeks. He was a man of wide literary culture, publishing a history of Greece; Poets and Poetry of Europe (with the aid of Prof. Longfellow); a translation of Prof. Guyot's work on Physical Geography, and an edition of the Birds of Aristophanes. He also wrote numerous articles for the "North American Review," and edited several articles for "Appleton's Cyclopaedia." Indeed, the world owes something to this town for such a man.

In theology, Harvard College owes much to the Second Parish of West Newbury, who gave up their pastor from 1774 to 1792, Rev. David Tappan, D. D.,† to fill the chair of Divinity in that institution. Andover Theological Seminary also came to this Second Parish of West Newbury to find its first Professor of Theology, Rev. Leonard

---

\*Pres. Felton, son of Cornelius Conway and Anna (Morse) Felton, was born Nov. 6, 1807. He entered Harvard College in 1823, having studied at the Academy at Bradford, with Joshua Coffin, the historian of Old Newbury, and at the Academy in North Andover under Simeon Putnam. Graduated in 1827, was connected with the Livingston County High School, Geneseo, N. Y., two years, appointed tutor in Harvard in 1829: Professor of Greek in 1834 and President in 1860. He died Feb. 26, 1862.

†Prof. Tappan was son of Rev. Benjamin Tappan, of Manchester, gr. Harvard College 1771, ord. at West Newbury, April, 1774, and inaug. Hollis Professor of Divinity in Harvard, Dec. 23, 1792; d. at Cambridge, Aug 27, 1803, aged 51.

Woods, D. D.,\* who was its pastor from 1798 to 1808. Whatever soundness in the faith that Seminary has preserved may be truthfully said to be largely due to the pioneer toil of Dr. Woods. He was also a layer of foundations in several of the great benevolent societies, organized in his day, having been a member of the Prudential Committee of the American Board for about twenty-five years. What this town has given to the world in the other departments of medicine, law and civil affairs, further research might be able to show something. Let it suffice to name Major Ben. Perley Poore, a journalist of some fame and the genial Washington correspondent of the "Boston Journal." During the intervals of leisure from his duties in Washington he resides on his farm in West Newbury, which is one of the most celebrated in the county.

The homestead comprises a collection of buildings arranged in a somewhat crescent form, with the ends flanked with stone circular buildings, one of which contains a portion of his unique and valuable library, the other devoted to the culinary department of the establishment; in the centre a rustic porch, surmounted by a noble pair of antlers and gracefully covered by creeping vines—the whole presenting a very pleasing and unique appearance. The large hall bespeaks the character of the establishment, being ornamented with paintings and curious old armor. There are also a series of rooms furnished in the revolutionary period; one a parlor, with its buffet filled with curious old crockery, the ancient chairs, tables, fireplace, etc. Another, the old kitchen, with the large fireplace, pot hooks and trammels, andirons and spit,

---

\* Leonard Woods, son of Samuel and Abigail Woods, of Princeton, Mass., b. 19th June, 1774, gr. Harvard College, 1796, ord. at West Newbury, Nov. 1798, Professor of Theology in the Theological Seminary at Andover, 1808-1846; d. at Andover, Aug. 24, 1854.

pots, tinder box, etc., a variety of chairs; the dressers with the pewter plates, mugs, etc.; the chamber with the bedstead, and its linen actually woven in the house, the chest of drawers filled with the clothing of the olden times, the cocked hat, breeches, waistcoat, brocade dresses, etc. Other rooms contain a large quantity of ancient implements, as spinning wheels, loom, flax breaker and comb, etc.; a plough of the last century, and other tools, not only those used on the farm but by the mechanics of that period; an old printing press with the stands, cases and types used by a brother of Dr. Franklin. In fact, the result only of a rapid glance at the collection of antique and historical materials in this old museum could not be enumerated short of a large volume.

There is also a very large collection of autographs, engravings, specimens of newspapers and newspaper clippings and other historical materials gathered here in rich profusion.

The garden contains many fine flowers, and there are also groves of oaks, pines and other forest trees planted years since by the present proprietor; from the hill an extensive view is obtained for miles in every direction; the Isles of Shoals and towns of the Merrimac Valley and others far and near.

At the landing we found Mr. Hayden Brown, one of the leading citizens, ready to give us a cordial welcome and escort us to the Second Congregational Church, which had been tendered for the use of the Institute for the day.

This church was gathered by Rev. John Tufts, of Newbury, and organized Sept. 1, 1731, under the name of the Fourth Church in Newbury. Under date of Feb. 12, 1821, it assumed the name of the West Church, of

West Newbury, and soon after the Second Church in West Newbury, the last being its present corporate name.

It has therefore existed one hundred and forty-three years, and has had nine pastors, of whom all save one were ordained here, beginning their ministry with this church. The following have been the pastors: 1, William Johnson, ord. Sept. 15, 1731, died Feb. 22, 1772; 2. David Tappan, ord. Apr. 18, 1774, dis. Sept. 6, 1792; 3. Leonard Woods, ord. Dec. 1798, dis. Sept. 28, 1808; 4. John Kirby, ord. June 12, 1816, drowned Dec. 5, 1818; 5. Elijah Demond, ord. Mar. 7, 1821, dis. Sept. 3, 1826; 6. Paul Couch, ord. Mar. 27, 1827; 7. J. Q. A. Edgell, ord. Sept. 17, 1832, dis. Oct. 27, 1853; 8. Davis Foster, ord. Nov. 4, 1855, dis. Sept. 24, 1867; 9. Seneca M. Keeler, installed June 13, 1872.

The first meeting house was erected on Silloway Hill, and the first meeting of the parish was held June 5, 1731. The second house was built in what was then known as Woodman's Lane, in 1815, and was dedicated Jan. 5, 1816. The third house (the one in which the church now worships) was removed to its present site, remodelled and enlarged into its present form in 1856 and 1857; corner stone laid Sept. 24, 1856, dedicated March 12, 1857.

The sun was pouring down its hottest rays as we walked up the hill from the shore to the church, and we felt the heat in striking contrast to the refreshing breeze on the river. At the northwest the black storm clouds were rising rapidly, the lightnings were flashing with scarce an interval, and the thunders were incessantly reverberating among the lofty hills and valleys. Soon the rain poured down in torrents for a short time, the party having in the meantime obtained shelter in the vestry of the church.



Rev. Seneca M. Keeler, the present pastor of the church, was present with several others who were active in rendering all possible attention to the visitors, and the refreshments brought by the party were augmented by a bountiful supply of tea, coffee and ice water. The collation was served in the commodious vestry, and at its close the rain had ceased. The air was greatly relieved of its oppressiveness and the weather was delightful.

The rain prevented any extensive rambles, and the only excursion upon land at West Newbury was between the landing and the church, and a short visit to the extensive comb manufactory of Messrs. S. C. Noyes & Co., but a few rods from the church. While the combs from this establishment are known almost everywhere in the country, there were many of the visitors who had never before seen the manufacture, and their ideas of the process required to transform a cow's horn into the beautiful and useful utensil so necessary to the comfort and happiness of every civilized being, were about as crude as some of the burlesques on agriculture would suggest about farming. Thousands of finished combs are produced weekly at these works, but it is a long time before the material gets through the various stages of preparation, which were explained by those in attendance.

At the hour for the afternoon session the company reassembled in the church. The President, HENRY WHEATLAND, occupied the chair. The records of the last meeting were read by the secretary.

The SECRETARY announced the following correspondence :—

From J. A. Allen, Cambridge, June 21; E. P. Boon, New York, June 16, 26, July 13; J. W. Brown, West Newbury, July 11; P. Carpenter, Montreal, June 6; James Coolidge, July 2; W. C. Folger, Boston, June 29; Edward Herrick, Athens, Penn., June 23, 29; G. B. Loring, July 2; Thomas Morong, Ipswich, July 9; Alfred

Osgood, Newburyport, June 19, July 3, 11, 15; George H. Peirson, June 26; Charles C. Perkins, Newport, R. I., July 10; Charles B. Rice, Danvers Centre, June 18; Jacob H. Studer, Columbus, Ohio, June 15; Grosvenor Library, Buffalo, N. Y., July 14; Buffalo Historical Society, June 16; Liverpool Literary and Philosophical Society, June 18; Corporation of Yale College, New Haven, July 13; New Jersey Historical Society, June 20, 26; Virginia State Library, Richmond, June 25.

## The LIBRARIAN reported the following additions :—

### *By Donation.*

- ALLEN, J. A., Boston. Miscellaneous pamphlets, 4.
- AMERICAN SWEDENBORG PRINTING AND PUBLISHING SOCIETY. *Arcana Celestia*. 10 vols. 8vo. *Heaven and Hell*. 1 vol. 8vo. *Four Leading Doctrines*. 1 vol. 8vo. *True Christian Religion*. 1 vol. 8vo. *Divine Love and Wisdom*. 1 vol. 8vo. *Apocalypse Revealed*. 2 vols. 8vo. *Conjugal Love*. 1 vol. 8vo. *Divine Providence*. 1 vol. 8vo. *Miscellaneous Theological Works*. 1 vol. 8vo.
- BROWN, HENRY A. *Proceedings of the National Board of Trade*. 5 vols. 8vo. 1868-1873.
- CABOT, J. S. *The Horticulturist*, 1846-1866. 20 vols. 8vo. *Gardener's Monthly*, 1826-1843. 19 vols. 8vo. *Pomological Magazine*, 1828, '29, '30. 3 vols. 8vo. *Florist's Guide*, 1827-32. *Journal D' Horticulture Pratique*, 1857, '58, '59. 3 vols. 8vo. *Annales De Pomologie*. 8 vols. 4to. *Album De Pomologie*, 1850. 2 vols. 4to. *Gardener's Monthly*, 22 numbers. *Magazine of Horticulture*, 39 numbers. *Tilton's Journal of Horticulture*, 22 numbers. *The Horticulturist*, 106 numbers.
- CONANT, W. P., St. Louis, Mo. *Reports of the St. Louis Public Schools for 1860-61-62, 1863-4, 1864-5, 1865-6, 1866-7, 1867-8, 1872-3*. 7 vols. 8vo. *Catalogue of the University of St. Louis, 1872-73*. 8vo pamph. *Catalogue of the Washington University, 1872-3*. 8vo pamph.
- DORR, EBEN P. *Sketch of the First Monitor, and its Inventor*. 8vo pamph. 1874.
- FOLGER, W. C., of Hingham, Mass. *Miscellaneous Town Reports*, 7.
- GREEN, S. A., Boston. *Miscellaneous pamphlets*, 7.
- GRIFFIN, L. F., Andover. *Catalogue of Phillips Academy, Andover, 1873-4*.
- KIMBALL, JAMES. *Boston Weekly Magazine, 1804-5*. 1 vol. 4to. *Proceedings of the Supreme Council for the Northern Masonic Jurisdiction*, 11 numbers.
- LEE, HARRIET P. *Documents relating to the Sanitary Commission*, 112. *Dwight's Journal of Music*, 45 numbers. *The Saturday Review*, 15 numbers. *The Spectator*, 13 numbers.
- LORING, GEO. B. *Report on the Statistics of Labor in Mass.* 1874. 1 vol. 8vo.
- MASSACHUSETTS MEDICAL SOCIETY. *Medical Communications of the*. Vol. vii, pt. viii. 1874.
- MORSE, E. S. *Portland and East Portland Directory for 1873*. 1 vol. 8vo. *Nevada Directory for 1868-9*. 1 vol. 8vo. *San Jose Directory for 1870*. 1 vol. 8vo. *Portland Directory, 1873*. 1 vol. 8vo. *Sacramento Directory, 1870*. 1 vol. 8vo. *Salt Lake City Directory, 1869*. 1 vol. 8vo. *Oakland and Brooklyn Directory, 1873*. 1 vol. 8vo.
- OSGOOD, CHAS. S. *Public Documents of Mass., 1871*. 1 vol. 8vo. *Acts and Resolves of Mass., 1871, 1872*. 2 vols. 8vo. *Registration Reports, 1865, 1868, 1869, 1870, 1871, 1872*. 6 vols. 8vo. *Reports of the State Board of Charities, 1869-70, 1870-71, 1871, 1872*. 3 vols. 8vo. *Mass. Life Insurance Reports, 1871, 1872, 1873*. 3 vols. 8vo. *Fire and Marine Insurance Reports, 1869, 1872, 1873, 1874*. 4 vols. 8vo. *Railroad Commissioners Reports, 1872-73*. 2 vols. 8vo. *Railroad Returns, 1866, 1868, 1869*.

3 vols. 8vo. Journal of the Mass. House of Representatives, 1872, 1873, 1874. 3 vols. 8vo. Journal of the Mass. Senate, 1872, 1873, 1874. 3 vols. 8vo. Report on the Board of Education, 1869, 1872-73. 2 vols. 8vo. Manual for the General Court of Mass., 1865, 1868, 1869, 1870, 1872, 1873, 1874. 7 vols. 12mo. Miscellaneous pamphlets, 94.

U. S. PATENT OFFICE. Official Gazette, June 2, 9, 16, 23. 1874.

*By Exchange.*

- ARCHIV FÜR ANTHROPOLOGIE. Band vi, Heft iv, 1874.  
 BUFFALO SOCIETY OF NATURAL SCIENCES. Bulletin of. Vol. ii, No. 1, 1874.  
 CROSSE ET FISCHER. Journal de Conchyliologie, Tome xiv. 3e Série. No. i, ii, 1874.  
 GEOLOGICAL SURVEY OF CANADA. Report on the Fossil Plants of Canada, by J. W. Dawson, LL. D., F. R. S., F. G. S. Montreal, 1873.  
 GESELLSCHAFT NATURFORSCHENDER FREUNDE IN BERLIN. Sitzungs-berichte, Jahrg. 1873. 1 vol. 8vo.  
 INSTITUT HISTORIQUE IN PARIS. L' Investigateur, 40s Année. No. ii. Feb., Mar. 1874.  
 K. K. ZOOLOGISCH BOTANISCHE GESELLSCHAFT IN WIEN. Verhandlungen, Band, xxiii, Jahrg. 1873. 1 vol. 8vo.  
 KONIGLICHE GESELLSCHAFT IN REGENSBURG. Flora, 1873. 1 vol. 8vo.  
 NATURFORSCHENDEN GESELLSCHAFT IN DANZIG. Shriften, Band iii, Heft ii, 1873.  
 NATURFORSCHENDEN GESELLSCHAFT IN ZURICH. Vierteljahrsschrift, Jahrg. xvii, 1872.  
 NATURHISTORISCHER VEREINS IN AUGSBURG. Bericht, 1873. 1 vol. 8vo.  
 NATURWISSENSCHAFTLICHE GESELLSCHAFT "ISIS" IN DRESDEN. Sitzungs-berichte, Jahrg. 1872. Oct., Nov., Dec. Jahrg. 1873. Jan.-Dec. Dresden. 1873-4.  
 NATURWISSENSCHAFTLICHEN VEREINE ZU BREMEN. Abhandlungen, Band iii, iv (Schluss), Heft, Band iv, Heft i. 1873-4. Beilage, No. iii, zu den Abhandlungen des. 4to pamph.  
 PEABODY INSTITUTE OF BALTIMORE. Seventh Annual Report of the Provost to the Trustees of, June 4, 1874.  
 PHILA. ACADEMY OF NATURAL SCIENCES. Proceedings of. Part I. Jan., Feb. Mch., 1874.  
 PHYSIKALISCH-MEDICINISCHE GESELLSCHAFT IN WÜRZBURG. Verhandlungen, vi Band iii and iv (Schluss) Heft.  
 ROYAL ASIATIC SOCIETY. Journal of the North China Branch of the. New Series, No. viii, 1874.  
 ROYAL SOCIETY OF LONDON. Proceedings of the. Vol. xxi, Nos. 146, 147. Vol. xxii, Nos. 148, 149, 150.  
 ROYAL SOCIETY OF TASMANIA. Monthly Notices of Papers and Proceedings of the, for 1872.  
 SOCIÉTÉ D' ACCLIMATATION IN PARIS. Bulletin Mensuel De La. 3me Série, Tome i, No. 2, 1874.  
 SOCIÉTÉ D' ANTHROPOLOGIE DE PARIS. Bulletins de La. Tome viii, 11e Série, Mai, Juillet, 1873.  
 SOCIÉTÉ VAUDOISE DES SCIENCES NATURELLES IN LAUSANNE. Bulletin. 2e Série. Vol. xii, No. 71. Feb., 1874.  
 VEREIN DER FREUNDE DER NATURGESCHICHTE IN MEKLENBURG. Archiv, 27 Jahrg. 1873. 1 vol. 8vo. Neubrandenburg, 1873.  
 VEREINS FÜR ERDKUNDE IN DARMSTADT. Notizblatt, iii Folge, xii Heft, Nos. 133-144.

VEREINES ZUR BEFÖRDERUNG DES GARTENBANES IN BERLIN. Monatsschrift des, 16 Jahrg. Jan.-Dec. 1873.

YALE COLLEGE. Catalogue of, 1874. 8vo pamph. Obituary Record of the Graduates of, 1874. Yale College in 1874.

ZEITSCHRIFT FÜR DIE GESAMMTEN NATURWISSENSCHAFTEN IN BERLIN. Band vii, viii, 1873. 2 vols. 8vo.

ZOOLOGISCHE GESELLSCHAFT IN FRANKFURT, A-M. Zoologische Garten, Jahrg. xiv. No. 7-12. Juli-Dec., 1873.

PUBLISHERS. American Naturalist. Forest and Stream. Gardener's Monthly. Gloucester Telegraph. Haverhill Gazette. Ipswich Chronicle. Lawrence American. Lynn Reporter. Lynn Transcript. Medical and Surgical Reporter. Nation. Nature. Peabody Press. Sailors' Magazine and Seamen's Friend. Salem City Post. Salem Observer. Silliman's Journal.

The President made a few remarks, in which he mentioned that this was the first meeting of the Institute at West Newbury, and that now every municipality in Essex County had been visited except Lawrence, and in accordance with the custom observed at the meetings at new places, he gave a brief statement of the history and objects of the society. Some of the facts stated are as follows:—As early as 1832-3, several young men discussed the propriety of organizing a society to promote the study of natural history. In the December following such an organization was partially effected, and at Topsfield, in April, 1834, it was perfected. The Natural History Society and the Essex Historical Society were united in 1848, and incorporated under the name of Essex Institute, and the sphere of its labors has from time to time been enlarged, until now it embraces history, natural history, horticulture, and the fine arts. The first field meeting of the society was held in 1849. At that time only a few persons attended, and the meetings were held in the farm houses or other convenient places, but they did not assume the present character until the summer of 1856. Since then meetings have been held in thirty-two towns or cities in Essex County, and four beyond the limits, and in fifty-eight different parishes or districts, from one to five in the same townships.



Mr. GEORGE D. PHIPPEN, of Salem, gave an interesting discourse on the few plants that had been gathered, and also on the familiar plants of the field and the garden, particularly on that unwelcome class known as weeds. For convenience he divided them into three classes, wild, cultivated, and intrusive. Among the many referred to he spoke of "woodwax," the seed of which was first sent to this country in 1629, to Gov. Endicott, and it was described as eminently useful for coloring purposes. The "white weed," with its traditional fame, is a common plant with our early history. "Chickweed" is referred to by the earliest botanists as suitable food for birds, has been long known, and is wonderfully diffused throughout the globe. The "nettle plant," from which good linen can be made, was first introduced into England by the Romans, and it is said, with more humor than truth, was used for the purpose of thrashing each other to keep themselves warm in cold weather, to which they were unused. Purslain, charlock, ambrosia and others were referred to. He also spoke of milkweed, the fibre of which has been used for textiles; and of the raising of hybrids and the success that has attended the efforts in this direction in the great variety of beautiful flowers and fine fruits, the result largely of human agency, ensuring hopes of never ending novelty and satisfaction.

Mr. JOHN ROBINSON praised the arrangement of ferns which were placed in front of the pulpit, and spoke of the kindness of the people in furnishing them.

Prof. D. B. HAGAR, of the State Normal School in Salem, spoke of the pleasure which he experienced when he saw men who, like a previous speaker, had some intellectual pursuit in addition to his ordinary business life.



The work of the Essex Institute in the way of cultivating a taste for scientific pursuits, is an excellent one ; and one of the best things we can do for young people is to encourage them to select some one branch of science and make it their study in their leisure time. Such pursuits are especially valuable in lifting men above the low life which regards dollars and cents as the chief object to strive for.

Mr. ABNER G. PHIPPS, agent of the State Board of Education, whose present visit to the town was the first since he had taught school there, before he entered College, spoke in support of the sentiments uttered by the previous speaker.

Dr. JEREMIAH SPOFFORD referred to the medicinal qualities of the milkweed spoken of by Mr. Phippen, and also to a theory entertained by him in regard to the ancient course of the river in the vicinity of Newbury, which he thought must have been some distance south of the present stream, and fifteen or twenty feet higher.

Mr. HAYDEN BROWN, of West Newbury, talked of the various matters relating to the history of the town, and the work of the Institute. He spoke of the people of the town as an honest, hard-working class, without a beer-saloon, a bowling alley, or a place where rowdies can congregate.

Hon. STEPHEN M. ALLEN, of Boston, made some interesting statements relating to the construction of dams and reservoirs.

Rev. W. H. H. MARSH, of Salem, in response to a call from the chair, said he regretted he had not the opportunity of attending more frequently the meetings of the Institute, the several objects of which are of such great practical importance. The age is marked by scientific investigation, and as science has so vastly enlarged her domain, and has thus disclosed the interdependence of the several branches of scientific investigation, the successful prosecution of any single department of science requires a knowledge of several of the others. The true scientific spirit aims at the largest comprehension possible of facts, and receives hypotheses with caution, if not with distrust. For this reason the correct interpretation of nature and the true interpretation of revelation at those points where it touches science, will certainly harmonize. Science interrogates nature and nature reveals God, and so scientific study should be promotive of virtue, morality, high-toned character, reverence and faith.

On motion of Mr. N. A. HORTON

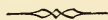
*Voted* That the sincere thanks of the Institute are due to the proprietors of the Second Church in West Newbury for the use of their building to hold this meeting; also to Mr. Hayden Brown, Mr. Gilman W. Brown, Rev. S. M. Keeler, and other citizens of West Newbury, for courtesies extended during this pleasant excursion.

An adjournment was had at about four o'clock, and it became necessary for the company soon to take their departure on the homeward trip.

The people of West Newbury had given the visitors a very favorable impression of the town and its inhabitants, and it is hoped the acquaintances formed under such pleasant auspices will be long continued.

Personally we desire to express our grateful appreciation of attentions from Rev. Mr. Keeler, a gentleman of high attainments and culture; Mr. Hayden Brown, of the firm of S. C. Noyes & Co., and his son, Mr. Gilman W. Brown, to whom we were indebted for valuable information in collecting material for this sketch. The elder Mr. Brown seems to be ready to every good word and work tending to benefit the community in which he resides. He has furnished a fine room for the Library Association, just organized on a plan of individual membership under a law of the State for such purposes, and we hope at our next visit to find its shelves groaning with their weight of wisdom. The nucleus is already inaugurated, and it will not be allowed to remain undeveloped.

The passage down the river was quite rapid, as wind and tide were now in our favor. Vocal music did its part in aiding the general enjoyment, and it was with a feeling of regret that we parted company with the Merimac and its beautiful "Queen." The 6.23 train soon transported us to the good old City of Peace, after a day of rare pleasure and much profit.



#### REGULAR MEETING, MONDAY, AUGUST 3, 1874.

MEETING this evening at 8 o'clock. The PRESIDENT in the chair.

Richard Harrington, of Salem, and Gilman W. Brown, of West Newbury, were elected resident members.

# BULLETIN

OF THE

## ESSEX INSTITUTE.

---

---

VOL. 6.      SALEM, MASS., SEPTEMBER, 1874.      NO. 9.

One Dollar a Year in Advance. 10 Cents a Single Copy.

---

---

### FIELD MEETING AT ROCKPORT, THURSDAY, AUGUST 6, 1874.

THE fourth field meeting the present season was held this day. The weather was very propitious for an excursion, the temperature cool and refreshing. The party, numbering about two hundred and fifty, was made up of delegations from Lynn, Salem, Beverly, Manchester and other towns in Essex County, a large proportion being, however, from Salem. The railroad ride was pleasant, affording a passing view of interesting sections of Beverly, Manchester and Gloucester, with occasional glimpses of the ocean and of some of the beautiful sea-side villas that have within the past few years been erected on this shore. The striking characteristics of the scenery on entering the precincts of Cape Ann are the many boulders to be seen upon the hills on every side.

On arrival at the place of destination a committee of the Rockport Agricultural Association met the party and proceeded to the Town Hall, which was the rendezvous for the day, and where a cordial reception was extended.

Then the party separated into groups, each wending their way to visit the various objects of interest, as inclination dictated.

Some went to Pigeon Cove, which always offers many attractions; some visited the quarries, where the process of getting out huge blocks of beautiful granite was watched with interest; and some took general rambles along the shore and noticed the artificial harbors constructed by the erection of solid granite breakwaters built at great cost; some went to Long Beach, which is in view of Thatcher's Island, where, Aug. 19, 1635, twenty-one persons were cast away and only Mr. Thatcher and his wife were saved; while others visited the extensive and fine cabinets of Dr. Barden and Mr. Knowlton, which contain many choice mineralogical and geological specimens. Bears' Skin Neck and the delightful woods claimed a fair share of attention. There are a number of fine residences in the town proper and at the Cove. Among those that attracted notice was that of John D. Sanborn, Esq., which is most pleasantly situated and commands a charming view.

At 2.30 P. M., after all had lunched in the dining room at the hall, or in little knots on the rocks or in the woods, the company gathered in the large audience room, where the afternoon session was held. The meeting was called to order by the President, HENRY WHEATLAND.

In the absence of the Secretary, Mr. N. A. HORTON was requested to act. Records of preceding meeting read.

The SECRETARY announced the following correspondence:—

From M. M. Carpenter, Montreal, Canada, Aug. 3; I. W. Fielder, Everett, July 16; F. E. Hotchkiss, New Haven, Conn., July 27; F. I. Isley, Newark, N. J., July 18; S. M. Keeler, West Newbury, July 17; W. J. Knowlton, Boston, July 25; T. Morong, Ipswich, July 18; Stuart Rogers, Providence, R. I., July 18; George Russell, Boston, July 29; K. T. Woods, Aug. 4; Iowa State Historical Society, July 15; Leeds Philosophical and Literary Society, July 25; New York State Library, Aug. 1.



# The LIBRARIAN announced the following additions:—

## *By Donation.*

- BROOKS, HENRY M. Reed's Apology. 1 vol. 12mo. Essex County Directory, 1839-70. 1 vol. 8vo. Conversations on Infant Baptism. 1 vol. 16mo.
- BUTLER, B. F., of U. S. Cong. Speech in U. S. H. R., June 19, 1874.
- CORNELL UNIVERSITY. Bulletin of. Vol. i, Nos. 1, 2, 1874.
- HOTCHKISS, F. E., of New Haven, Conn. New Haven Directories for 1870, 1871, 1872, 1873. 4 vols. 8vo. Miscellaneous pamphlets, 16.
- ILSLEY, F. I., of Newark, New Jersey. Newark City and Business Directory, 1873-74. 1 vol. 8vo. Miscellaneous almanacs, 54.
- KIMBALL, JAMES. Freemason's Monthly Magazine for 1873.
- KINGSLEY, Mrs. —. Federal Republican and Commercial Gazette for 1873. 1 vol. folio.
- LORING, GEO. B. Agriculture of Mass., 2d Series, 1873-74. 1 vol. 8vo. Thirty-fifth Registration Report, 1872-73. 1 vol. 8vo. Report of the Insurance Commissioner of Mass., 1874. 1 vol. 8vo. Miscellaneous pamphlets, 17.
- MAINE BOARD OF AGRICULTURE. Report of the Secretary of the, for 1873-74. 1 vol. 8vo.
- MASON, ALBERT, New York, N. Y. History of Burmah, by Rev. F. Mason. 1 vol. 8vo. 1860. The Story of a Working Man's Life, by F. Mason. 1 vol. 8vo. 1870.
- MERRITT, L. F. The Shanghai Budget, Mch. 26, Apr. 2, 9, 18, 25, May 2, 9, 16, 23, 30, June 6, 13, 1874. Essex County Mercury, May 27, June 17, 24, July 1, 15, 23, 1874.
- OFFICE OF THE CHIEF OF ENGINEERS. Report of a Reconnaissance in the Ute Country made in 1873, by Lieut. E. H. Buffner. 8vo pamph. Washington, 1874.
- PERKINS, ALBERT C., of Exeter, N. H. Catalogues of Phillips Exeter Academy, 1783-1869, 1873-4.
- QUINT, A. H., of New Bedford, Mass. Minutes of the Seventy-Second Annual Meeting, Lynn, June 16-18, 1874, with the Reports and Statistics. Boston, 1874.
- SWALLOW, GEO. C. Report of the Curators of the University of the State of Missouri, Catalogue, etc., for the year ending June 24, 1874.
- U. S. PATENT OFFICE. Official Gazette, July 14, 1874.
- WORCESTER LYCEUM AND NATURAL HISTORY ASSOCIATION. Officers of the, for 1874-5. Worcester, 1874.
- YOUNG MEN'S CHRISTIAN ASSOCIATION OF WORCESTER. Report for 1874.

## *By Exchange.*

- BERWICKSHIRE NATURALIST CLUB, Alnwick. Proceedings. Vol. vii, No. 1, 1873.
- BOSTON PUBLIC LIBRARY. Bulletin of. July, 1874.
- BOTANISK TIDSSKRIFT IN KJOBENHAVN. Tidsskrift. Vol. ii, pts. 2, 3. Journal De Botanique, 1872-3. 2 pamphlets, 8vo. 1874.
- IMPÉRIALE ACADEMIE DES SCIENCES DE ST. PETERSBOURG. Mémoires, Tome xix, Nos. viii, ix, x, 1873. Tome xx, Nos. i, ii, iii, iv, v, 1873. Tome xxi, Nos. i, ii, iii, iv, v, 1873. 13 pamphlets, 4to. Bulletin, Tome xviii, Nos. iii, iv, v, 1873. Tome xix, Nos. i, ii, iii, 1873-4. 6 pamphlets, 4to.
- IOWA STATE HISTORICAL SOCIETY. The Annals of Iowa. April, 1874.
- KONGELIGE DANSKE VIDENSKABERNES SELSKABS IN KJOBENHAVN. Oversigt, 1873. No. ii.
- MANCHESTER SCIENTIFIC STUDENTS' ASSOCIATION. Annual Report for 1873.
- NATURAL HISTORY SOCIETY OF MONTREAL. Canadian Naturalist and Quarterly Journal of Science. Vol. vii. No. 5. 1874.
- NEW JERSEY HISTORICAL SOCIETY. Proceedings. Vol. iii, 2d Series, No. 4, 1874.

NEW YORK GENEALOGICAL AND BIOGRAPHICAL SOCIETY. Record of, Vol. v, No. 3. July, 1874.

PUBLISHERS. American Journal of Science and Arts. American Naturalist. Forest and Stream. Gardener's Monthly. Gloucester Telegraph. Hardwicke's Science Gossip. Haverhill Gazette. Ipswich Chronicle. Lawrence American. Lynn Reporter. Lynn Transcript. Medical and Surgical Reporter. Nation. Nature. Peabody Press. Salem City Post. Salem Observer.

The PRESIDENT, in introducing the exercises, took occasion to refer to the memory of the late Rev. Stillman Barden,\* who, on previous visits to Rockport had been unremitting in his attentions. Mr. Barden had been the minister of the Universalist Society of this place for several years, and during his residence here had, by his indefatigable labors, contributed largely to our knowledge of the mineralogical treasures found occasionally during the excavations in the extensive quarries.

Mr. ALFRED OSGOOD, of Newburyport, read the following notes concerning the

“LEAD MINE” AT ROCKY HILL, WEST NEWBURY.

In the early part of last year a farmer of Newbury, at or near a place called “Rocky Hill,” discovered a piece of lead ore on the surface of the earth, and, incited by records or traditions of former discoveries of the metal in the same region, he purchased the lot of land, containing twelve acres, and commenced digging, finding pieces of the size of one pound and upwards to some of two or three hundred pounds in weight, distributed among the drift, which in this region consists largely of angular fragments not much worn, and a loamy soil. The amount of ore realized up to date being about three tons. The dimensions of his pit are thirty feet by five and six feet in depth; the deposit of ore, however, was not more than

---

\* For a biographical and obituary sketch of Rev. Mr. Barden, by Rev. Mrs. P. A. Hanaford, see Historical Collections of Essex Institute, Vol. vii, page 213.

twelve feet in length and lying on the northwest side of a boulder, containing small veins of lead, antimony, and sulphuret of iron. (The ledges in that region are what Professor Hyatt calls Diorites.)

Other prospective diggings disclosed only boulders much worn and rounded by glacial action, and of the same character as the large one.

All of the pieces of lead ore were much worn, and the iron in contact decomposed.

Mr. F. W. PUTNAM made some further observations, not only on this mine, but in explanation of the process by which the boulders seen standing alone on the high hills are brought hither on the ancient icefields from the North.

He also gave a very interesting account of

#### THE ANDERSON SCHOOL OF NATURAL HISTORY ON

Penikese Island, where he, with others, had spent several weeks past as an instructor. This island, situated some twelve miles south from New Bedford, one mile in length by a half a mile in width, was donated by Mr. Anderson, of New York, a year or two since, to Prof. Agassiz, as a location for a scientific school during the summer months.

Mr. Anderson also gave the sum of fifty thousand dollars to be expended for the necessary buildings, etc. The school was in operation for the first time last season, under the direct superintendence of Prof. Agassiz, who gave to it his accustomed zeal and vigor to establish it upon a firm and enduring basis. Mr. Alexander Agassiz, son of the late Prof. Agassiz, is the present director, and the pupils, who come from all parts of the country, are composed of Normal teachers and professors, principally from the western colleges. There are over fifty pupils and from

ten to twelve instructors, each instructor having charge of a special department. He described the several buildings and the method of instruction pursued. Text books are abolished and the studies are directly from the specimens by dissection and from life. A tug boat visits the island from New Bedford three times a week. The expenses of the students are about eight dollars per week. He anticipated the best results from this school in the dissemination of scientific knowledge, and certainly hardly greater facilities could be offered.

Hon. A. W. DODGE followed Mr. Putnam and quoted Agassiz to the effect that a great error in our mode of teaching is that we rely too much upon text books ; yet he thought there was danger that those who made a specialty of certain studies would attach too much value to their particular study in comparison with others. He then made some very important remarks upon horticultural pursuits, and described the process of growth by which certain common fruits are developed.

Prof. ALBERT H. TUTTLE, of the Ohio Agricultural and Mechanical College, Columbus, who has been visiting in Salem for some weeks for the purpose of dredging on the coast and collecting the marine fauna and flora, among other remarks spoke of the great variety of marine plants and animals found along the coast, and the opportunities thus afforded to students in zoology and botany for investigation and research.

Rev. A. B. HERVEY, formerly of Peabody, now of Troy, N. Y., who is spending his summer vacation near the Clifton House, in Marblehead, gave a description of some of the curiosities seen during his trip to the shore, with a humorous narrative of his conveyance thither.

Mr. F. W. PUTNAM then described certain specimens which were placed upon the table, consisting of the egg case of a species of *Buccinum* ; a stone bored by a *Pholas* ; a sponge found on the shore ; and a mass of clay in the form of a tube, which was probably the case of a large marine worm.

Hon. JAMES KIMBALL read the following communication from Mr. J. B. Wardwell, of Methuen, Mass., giving

#### A DESCRIPTION OF AN INDIAN RELIC

Recently found on the farm of Mr. Wm. Hutchins, in Methuen, and near the New Hampshire line. A rock of gray, compact sandstone, with a broad, flat surface, and estimated to weigh nearly half a ton, was dug up in rising ground bordering meadow land, where, no doubt, once existed a small pond. Mr. Hutchins was digging large stones from this pasture for building purposes, which led to its discovery. The rock was bottom up, and so bedded that but a small portion of it was visible above ground, and this part was covered with a close, filmy, gray moss. It was hauled to the road (an eighth of a mile) where it was to be used in a cellar wall, and on removal of the dirt from the flat side, about three-fifths of a circle was discovered. To the eye this appears to be a perfect circle. It measures twenty inches in diameter, and from a half inch to three-quarters of an inch in depth. It was accomplished by drilling holes as near together as possible, and then removing the intervening portions. The instrument, or drill, appears to have been between a quarter and three-eighths of an inch in diameter, and the markings number one hundred and twenty, and are suggestive of the use of the *bow*, as a means of moving the drill. These markings bear the impress of great age.



The missing part of the relic will be sought after, from time to time, though I think with but little prospect of success, as the fracture has also the appearance of age, and the fragment may have been destroyed or carted off years ago. A small portion of the surface within the circle and near the line of fracture has been removed, and suggests the idea of its having been broken and abandoned, when it had reached its present stage of completion. The relic is now in my possession, and I regret to add, that in splitting it off from the main body, it was broken into several pieces, although fourteen holes were drilled for its accomplishment. The fragments are now joined, and the whole embedded in plaster.

A reasonable conclusion is, that it was intended for a large mortar, but ruined in the process. It is particularly interesting as a relic, on account of showing plainly the method adopted in hollowing out these vessels, as also, its remarkable size and correctness of outline. The surface in which this circle is wrought was originally coated with a silicious film, a large portion of which still remains.

Moulds will immediately be prepared, for furnishing casts of this relic at reasonable prices.

Mr. PUTNAM remarked on the importance of this relic as showing how the large stone vessels, or "mortars," as they are generally called, were made.

Mr. CALEB COOKE announced the donation of several interesting historical relics to the cabinets, including a pair of antique andirons and a chafing dish from Mr. William Russell, of Salem.

Mr. Cooke also mentioned that Mr. Charles H. Foster, of Salem, during his recent visit to Australia, had, with much care and attention, made a very valuable collection

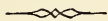
of the animals illustrative of the peculiar fauna of that country, comprising the skins of twenty mammals and one hundred and twenty-one birds, besides several reptiles, fishes, etc. These he has kindly presented to the Institute, and they have been accordingly deposited in the museum.

A vote of thanks to Mr. Foster for this very acceptable addition to the museum, and for the interest he has thus expressed in the promotion of the objects of the Institute; also to the other friends whose liberal contributions have been announced at this meeting, was unanimously adopted.

On motion of Mr. Kimball it was

*Voted*, That the thanks of the Institute are due to the Selectmen of Rockport for the use of the town hall to hold this meeting; and to the members of the Rockport Agricultural Association for courtesies extended to the members and their friends during this pleasant visit to Rockport.

Adjourned.



#### REGULAR MEETING, MONDAY, AUGUST 17, 1874.

MEETING this evening at 8 o'clock. Vice President A. C. GOODELL in the chair.

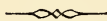
Mrs. E. S. Metcalf, Charles T. Jenkins, Frederick Porter and George G. Putnam, all of Salem, were duly elected resident members.

Mr. C. H. HIGBEE presented specimens of the *Anthrenus varius*, and made some interesting remarks upon

the history and habits of this insect, so injurious to woollen fabrics.

The chair presented to the Institute an old cartridge box, the gift of Hon. William Fabens, of Marblehead. This old box, with its belt and covers, was found in the walls of an ancient farmhouse, recently taken down, upon the Neck, in Marblehead. As it bore the monogram of George the Second it may have been secreted previous to 1760 by some deserter from one of the many ships of war that sailed to our shores before the revolution. Remarks suggested by this subject were made by Messrs. W. P. Upham, Henry Hale, and others.

Adjourned.



#### REGULAR MEETING, MONDAY, SEPTEMBER 7, 1874.\*

MEETING this evening at 8 o'clock. The PRESIDENT in the chair. Records of last meeting read.

The SECRETARY announced the following correspondence :—

From M. Anagnos, Boston, Aug. 27, Sept. 7; Gilman W. Brown, West Newbury, Aug. 12; C. C. Carpenter, Andover, Sept. 3; John D. Champlin, Jr., New York, Aug. 27; Joseph Cummings, Middletown, Conn., Sept. 14; Samuel Hart, Hartford, Conn., Aug. 17; A. Lackey, Haverhill, Aug. 31; R. Ridgway, Washington, D. C., Aug. 12; W. Hudson Stephens, Denver, Col., Aug. 27; Charles A. Walker, Boston, Aug. 25; Yale College, Aug. 21.

The LIBRARIAN reported the following additions :—

#### *By Donation.*

BRIGGS, DANIEL B., of Lansing, Mich. Report of the Superintendent of Public Instruction of the State of Michigan, 1873. 1 vol. 8vo.

BUREAU OF EDUCATION, WASHINGTON, D. C. Circulars of Information of the. No. I, 1874.

BUTLER, B. F., M. C. Memorial Addresses on Charles Sumner, Apr. 27, 1874. 1 vol. 8vo. U. S. Coast Survey for 1870. 1 vol. 4to. Report of Explorations and Surveys for a Ship-Canal, Isthmus of Darien. 1 vol. 4to.

CABOT, J. S. The Life of John Phillips. 1 vol. 12mo. Tariff of Duties, by P. P. Degrand. 1 vol. 12mo. Grammar of the Greek Language. 1 vol. 12mo. Adam's Latin and English Grammar. 1 vol. 12mo. Poetical works of Lord Byron. 1 vol. 12mo. Patriotic Addresses. 1 vol. 12mo. Butler's Analogy. 1 vol. 12mo. Watt's Logic. 1 vol. 12mo. Anecdotes. 1 vol. 12mo. The Tatler. 1 vol. 12mo. History of Bonaparte. 1 vol. 8vo. Lecture on Astronomy. 1 vol. 8vo. Burlamaqui on Laws. 2 vols. 8vo. Martin's Gazetteer of Virginia. 1 vol. 8vo. Moore's Universal Geography. 1 vol. 8vo. Millot's General History. 5 vols. 8vo. Duncan's Cicero. 1 vol. 8vo. Guthrie's Grammar. 1 vol. 8vo. Conquest of Mexico. 2 vols. 8vo. Duffie's Nature Displayed. 2 vols. 8vo. Treatise on the Vine. 1 vol. 8vo. The American Gardener. 1 vol. 12mo. Hewey's Meditation. 1 vol. 12mo. The Female Spectator. 1 vol. 12mo. Poetical Works by T. Pindar. 1 vol. 12mo. Jackson's Messages. 1 vol. 12mo. Essays by John Locke. 2 vols. 8vo. Siamese Tales. 1 vol. 16mo. The Death of Abel. 1 vol. 16mo. The Works of Horace. 1 vol. 16mo. Rural Sports. 1 vol. 12mo. History of Rasselas. 1 vol. 12mo. Young's Dictionary. 1 vol. 8vo. History of the Heathen Gods. 1 vol. 16mo. Saville's Miscellanies. 1 vol. 12mo. Practical Grammar of the English Tongue. 2 vols. 12mo. Vicar of Wakefield. 1 vol. 12mo. Homer's Iliad. 1 vol. 16mo. Evenings at Home. 3 vols. 12mo. Method of Teaching and Studying Belles-Lettres. 4 vols. 12mo. Milot's History of England. 4 vols. 12mo. Florist's Guide. 2 vols. 8vo. Pomological Magazine. 3 vols. 8vo. Greek Testament. 1 vol. 12mo. Miscellaneous pamphlets, 40.

CUMMINGS, Rev. JOSEPH, Pres. of Wesleyan University, of Middletown, Conn. Annual Catalogues of the Wesleyan University. 15 pamphlets. 8vo. The Wesleyan Olla Podrida. 3 pamphlets, 8vo. Ceremonies and Speeches at the Laying of the Corner Stone and Dedication of Orange Judd Hall of Natural Sciences, May 5, 1870.

DEPARTMENT OF THE INTERIOR. U. S. Coast Survey, 1868-69. 1 vol. 4to. Diseases of Cattle in U. S., 1839-70. 1 vol. 4to. Compendium of the Ninth Census of U. S., 1870-71. 1 vol. 8vo. Commercial Relations, 1871-72. 2 vols. 8vo. Senate Miscellany, 2d Sess., 42d Cong., 1871-72. 1 vol. 8vo. Report of the Department of Agriculture, 1872. 1 vol. 8vo. Affairs in the Late Insurrectionary States, 1872. 13 vols. 8vo. House Miscellaneous, 2d Sess., 42d Cong., 1871-72. 4 vols. 8vo. Foreign Relations of the United States, 1872-73. 6 vols. 8vo. Report of the Secretary of War, 1872-73. 2 vols. 8vo. Report of the Secretary of the Interior, 1872-73. 2 vols. 8vo. Annual Reports, 3d Sess., 42d Cong., 1872-73. 1 vol. 8vo. Executive Documents, 3d Sess., 42d Cong., 1872-73. 4 vols. 8vo. Estimates of Appropriations, 1873-74, 1872-73. 1 vol. 8vo. List of Private Claims from 32-41 Cong. 1 vol. 4to, 1872-73. Reports of Explorations and Survey for a Ship-Canal, Isthmus of Darien, 1872-73. 1 vol. 4to. House Journal, 3d Sess., 42d Cong., 1872-73. 1 vol. 8vo. House Miscellaneous, 3d Sess., 42d Cong., 1872-73. 3 vols. 8vo. Senate Miscellaneous, 3d Sess., 42d Cong., 1872-73. 1 vol. 8vo. Senate Documents, 3d Sess., 42d Cong., 1872-73. 1 vol. 8vo. Senate Reports, 3d Sess., 42d Cong., 1872-73. 3 vols. 8vo. Senate Journal, 3d Sess., 42d Cong., 1872-73. 1 vol. 8vo. Report of Committees, 3d Sess., 42d Cong., 1872-73. 3 vols. 8vo.

PEABODY, Mrs. F. Horticultural Register, 27 numbers. Annals of Electricity, 31 numbers. Putnam's Monthly, 14 numbers. European Agriculture and Rural Economy. 10 numbers. The Monthly Miscellany, 12 numbers. Western Quarterly Review, 25 numbers. American Repertory, 24 numbers. Christian Examiner, 93 numbers. American Journal of Science, 26 numbers. Gardener's Monthly, 66 numbers. Journal of Science and the Arts, 17 numbers. The Horticulturist, 54

numbers. The Farmer's Cabinet, 45 numbers. Monthly Religious Magazine, 71 numbers. American Quarterly Review, 38 numbers. The Chemist, 42 numbers. Magazine of Horticulture, 135 numbers. Magazine of Domestic Economy, 25 numbers. Hunt's Merchant's Magazine, 33 numbers. The Mechanic's Magazine, 27 numbers. Library of Useful Knowledge, 173 numbers. New England Magazine, 8 numbers. The Knickerbocker Magazine, 7 numbers. London Journal, 17 numbers. Edinburgh Journal of Science, 12 numbers. Salem Directories, 1855, 1857, 1859, 1861, 1864, 1865. Mass. Register, 1823, 1825. English Exercises. 1 vol. 12mo. Beleke's German Grammar. 1 vol. 8vo. Burns' Poems. 1 vol. 16mo. Addick's French Elements. 1 vol. 8vo. Live and Learn. 1 vol. 12mo. Miscellaneous pamphlets, 900.

TAFT, S. H., of Humboldt, Iowa. Catalogue of the Officers and Students of Humboldt College for 1873-74.

U. S. PATENT OFFICE. Official Gazette, July 21, 28, Aug. 4, 11, 1874.

WATERS, J. G. Boston Almanacs, 1850, 1851, 1852, 1853, 1854, 1855, 1856, 1857, 1859. Salem Directories, 1850, 1855, 1859.

WILLIAMS, H. L. The International Railway Guide, 11 numbers. Miscellaneous pamphlets, 37. Miscellaneous almanacs, 7.

WILLSON, E. B. Record of the Unitarian Worthies, Aug., 1874.

### *By Exchange.*

BOSTON PUBLIC LIBRARY. Twenty-second Annual Report, 1874.

GEOLOGICAL SURVEY OF CANADA. Palæozoic Fossils. Vol. ii, pt. 1, Aug., 1874.

INSTITUT HISTORIQUE IN PARIS. L' Investigateur, 40e Année, No. iii, Avril-Mai, 1874.

LITERARY AND PHILOSOPHICAL SOCIETY OF MANCHESTER. Memoirs of, 3d Series, Vol. iv, 1871. 1 vol. 8vo. Proceedings of, Vols. viii, ix, x, xi, xii. 1859-73. 6 vols. 8vo.

NATURFORSCHENDER VEREIN IN RIGA. Correspondenzblatt, xx Jahrg.

SENCKENBERGISCHE NATURFORSCHENDE GESELLSCHAFT IN FRANKFURT. Abhandlungen, Bd. ix, No. 1-2, 1873.

SOCIÉTÉ D'ACCLIMATATION IN PARIS. Bulletin Mensuel, 3me Série, Tome i, Avril, 1874.

PUBLISHERS. American Journal of Science. Forest and Stream. Gardener's Monthly. Gloucester Telegraph. Haverhill Gazette. Ipswich Chronicle. Lawrence American. Lynn Reporter. Lynn Transcript. Medical and Surgical Reporter. Nation. Nature. Peabody Press. Sailors' Magazine and Seamen's Friend. Salem Observer. Salem Post.

Mr. CALEB COOKE mentioned that among the recent additions to the cabinets may be specified the donation from Samuel Emery, of Salem,—a Franklin medal. This medal was adjudged as a reward of merit, by the Boston school committee, to Stephen Emery, 1799. Also a longitude and azimuth compass made by R. Walker.

Rev. E. C. BOLLES presented some interesting relics, collected by him, from Chester, in England, consisting in



part of pieces of pottery, human bones, etc., of the Roman period; also stereoscopic views of the Salisbury cathedral and other sites of historic interest in that vicinity, including Old Sarum and Stonehenge, the supposed ruins of an old Druidical temple. He described the Blackmore Museum in Salisbury, and exhibited a stone implement from one of the mysterious "barrows" or burial mounds on the plain about Stonehenge. These mounds are of different forms, and probably different ages, and are the most conspicuous objects in the melancholy scenery of Salisbury Plain. The soil is chalk, overlaid by a thin, crispy turf. Some of the barrows have been opened; and by searching in the half filled excavation in one of these diggings, Mr. Bolles found this spearhead, roughly chipped from flint, and exhibiting in its weathered surface the marks of great antiquity. It is about five inches long and two wide. Mr. Putnam, to whom it was submitted, was uncertain whether to consider it a complete implement of the rudest stone age; or an unfinished one of a later period. Mr. Bolles made these relics the subject of some unpremeditated remarks of great interest, and we hope that he may be induced at some future meeting of the Institute to give a more extended account of his recent researches amid the ancient haunts of the Druids and the Romans in England.

The PRESIDENT alluded to the recent donation from a few friends of a valuable cast of the "Rosetta Stone." The stone of which this is a cast was discovered near Rosetta, in lower Egypt, in August, 1799, and is now deposited in the British Museum. The inscription is in three languages, Hieroglyphic, Demotic, or the language of the country, and Greek. Being counterparts, or repetitions of each other, they give the main key and help in

deciphering the hieroglyphics of ancient Egypt. The event recorded by the Rosetta stone, the decree issued at the coronation of Ptolemy Epiphanes, took place at Memphis in March, 193 B. C. This cast is one of Ward's series, and was made at Rochester, N. Y.

The PRESIDENT called the attention of the meeting to the decease of Prof. JEFFRIES WYMAN, of Cambridge, a valued corresponding member, which occurred at Bethlehem, N. H., on the 4th inst., in his sixty-first year. He spoke of the great loss which the Institute and science had sustained in his death, and alluded to the very prominent positions which he had held, and his worth both as a man and a scientist.

Vice President F. W. PUTNAM gave an account of the scientific work of Prof. Wyman, alluding especially to the great care with which he conducted all his researches; his extreme cautiousness; the remarkable thoroughness of his work and the extraordinary modesty, but at the same time amazing force, with which he advanced his views. As an anatomist and physiologist he was without a superior, and he was a most careful and profound investigator in archæology, to which science he had devoted the later years of his life. His work upon the ancient shell heaps of Florida, which is now being printed by the Peabody Academy of Science, will be a lasting monument to him as an archæologist, and will exhibit the care with which he performed his investigations and deduced his results.

Mr. PUTNAM then offered the following resolutions, which were unanimously adopted:—

Whereas, the ESSEX INSTITUTE has learned with deep

regret of the death of its distinguished corresponding member, Professor JEFFRIES WYMAN, therefore,

*Resolved*, That in the death of JEFFRIES WYMAN, the Institute acknowledges the loss of a most honored member, and laments that science is deprived of the continued labors of one of the most upright and conscientious of men, most cautious of investigators, and most concise of expounders in his chosen departments of physiology, comparative anatomy, embryology and anthropology.

*Resolved*, That a copy of these resolutions be sent to the bereaved family of our late member, as the expression of our condolence with them in their great affliction.

Adjourned.



REGULAR MEETING, MONDAY, SEPTEMBER 21, 1874.

MEETING this evening at 7.30 o'clock. PRESIDENT in the chair. Records read.

The SECRETARY announced the following correspondence:—

From James S. Bryant, Hartford, Conn., Sept. 12; Joseph Cummings, Middletown, Conn., Sept. 15; J. W. Fielder, Everett, Sept. 10; Samuel Hart, Hartford, Conn., Sept. 16; C. H. Higbee, Boston, Sept. 21; Alfred M. Mayer, South Orange, N. J., Sept. 19; S. M. Watson, Portland, Me., Sept. 12.

The LIBRARIAN announced the following additions:—

*By Donation.*

HART, SAMUEL, of Trinity College, Hartford. Address before the House of Convocation of Trinity College, July 1, 1874, by Rev. Wm. Payne, D.D.

HOADLEY, C. J., of Hartford, Conn. Legislative Documents of Conn., 1864, 1865, 1866, 1867, 1868, 1869, 1870, 1871, 1872, 1873, 1874. 20 vols. 8vo. Catalogue of Conn. Volunteer Organizations, 1861-65. 1 vol. 8vo. History of Conn. during the Recent War, 1861-1865. 1 vol. 8vo. New Haven Colonial Records, 1338-1743. 7 vols. 8vo. Genealogical Notes by N. Goodwin. 1 vol. 8vo.

U. S. PATENT OFFICE. Official Gazette, Aug. 15, 1874.

WOLCOTT, J. W., of Boston, Mass. Report on the Statistics of Labor, 1873. 1 vol. 8vo. Annual Report of the Board of State Charities, 1-9. 9 vols. 8vo. Thirtieth Registration Report of Mass., 1871. 1 vol. 8vo. Miscellaneous pamphlets, 12.

WATERS, J. G. Chicago Directory, 1863-64. 1 vol. 8vo. The Christian Inquirer, 60 numbers. Almanacs, 13. Miscellaneous pamphlets, 34.

*By Exchange.*

AMERICAN ANTIQUARIAN SOCIETY. Proceedings of the Semi-Annual Meeting, held in Boston, Apr. 29, 1874.

CANADIAN INSTITUTE. The Canadian Journal of Science, Literature and History. Vol. xiv, No. 3., Aug., 1874. 8vo. Toronto, 1874.

PUBLISHERS. Forest and Stream. Haverhill Gazette. Ipswich Chronicle. Lawrence American. Lynn Reporter. Lynn Transcript. Medical and Surgical Reporter. Salem Observer. Salem Post.

Among the donations announced to the cabinets may be specified several articles illustrative of the costumes of central Turkey, presented through the Rev. E. S. Atwood, from Miss E. M. Pierce, of the Mission Station at Aintab, Central Turkey, formerly a resident of Salem, and a teacher in one of the public schools. These consisted of a pair of native boots, a pair of native shoes, also of cobcob; ink and penholder, knife, comb, and specimens of native cloth; and a Turkish telegram.

Mr. ROBINSON states that a new fern has been received from Dr. C. C. Parry, collected by him in Southern Utah. It is named by Prof. Eaton "*Notholæna Parryi*."

Caroline A. Watson, of Salem, was elected a resident member.

# BULLETIN

OF THE

## ESSEX INSTITUTE.

---

---

VOL. 6.                      SALEM, MASS., OCTOBER, 1874.                      No. 10.

One Dollar a Year in Advance. 10 Cents a Single Copy.

---

---

FIELD MEETING AT MANCHESTER, FRIDAY,  
OCTOBER 2, 1874.

THE closing field meeting of the season was held this day, at Manchester, by the kind invitation of Mr. Lewis N. Tappan and other citizens of that town. Manchester is one of the most attractive places in this county to hold a meeting. It is a locality exceedingly rich in the various objects which contribute to the enjoyment of the lovers of natural history. The proximity to the woods, on the one side, which abound with floral treasures, varying with the different seasons of the year, and the diversified soil and aspect; the rocky and craggy hills, the meadows and the lowlands, each having its distinct flora; on the other side the seashore, with its bold, rocky cliffs, and the intervening beaches, cooled during the heated months by the invigorating breezes from the ocean, offer to the students of the marine flora and fauna much to study and investigate.

The day was unpropitious, and the attendance was accordingly smaller than usual. The party was welcomed



at the station by Messrs. Tappan, Merrill, Price and others, and were conveyed to various points of attraction in carriages provided for the occasion. Some went to the seashore, where "Eagle Rock" and the several fine beaches offered great attractions, more especially "the musical sands" which are situated on part of what is known as the "Old Neck Beach," and are alluded to in the notice of the meeting on Thursday, Aug. 2, 1866;\* some to the woods, noticing especially the famous boulder named "Agassiz Rock;" also large and fine specimens of the tupelo tree (*Nyssa multiflora*) and of the sassafras tree (*Sassafras officinale*); others went in different directions, as inclination dictated.

Lunch was had at the Town Hall at about one o'clock, tea and coffee being provided by citizens of the town, and the afternoon session was held at the same place at two and one-half o'clock.

In the absence of the President, Vice President F. W. PUTNAM took the chair and made the opening address.

He stated that a field meeting was held at Manchester, Aug. 28, 1849, the first year of holding these meetings, being the third of this series. The place of rendezvous was at the point, on Burley Smith's farm. The adjacent shore was dredged to procure the mollusca and other marine animals; the late Mr. William Stimpson was present and made his first dredging; the forerunner of his extensive and valuable services in sea dredging, which has so indelibly associated his name with the marine zoology of New England.

In July, 1856, through arrangements made by Mr. Jonathan French, jr., principal of the public high school, another field meeting was held in the high school house,

---

\* See Proceedings of Essex Institute, Vol. v, page 57.

a building placed upon the brow of an elevation, a short distance from the thickest settlement of the town, and from which is a most beautiful landscape and water view. This meeting was memorable as the first of the meetings attended by ladies, the excursions having previously been confined to small parties of gentlemen, travelling in private conveyances.

A meeting was also held in the town in the following summer of 1857, and again on Thursday, August 2, 1866, soon after the completion of the laying of the Atlantic cable, and resolutions were passed on the successful result of that undertaking. At this meeting the late Chief Justice Chase and other distinguished persons were present.

The chairman then called on Prof. E. S. MORSE, of Salem, who spoke at some length upon the cause of the glaciér scratches found on our pasture bowlders, illustrating his remarks by explanatory diagrams on the black-board. The proofs of the glacial theory, the action of the glaciers, the origin of moraines, the formation of icebergs and incidental questions connected with the topic, were ably presented. In the course of his remarks he made a statement not generally known, that the American Indians were acquainted with the fact that the glacial scratches on ledges and bowlders run north and south, and that they used them as a guide. The fact is not referred to in any work of science, or aboriginal history, but Mr. Morse received it from an old gentleman, at Portland, whose grandfather remembered that the Indians sometimes found their way through the forests by scratching away the earth over the rock in order to note the direction of the smooth scratches.

The speaker also alluded to the somewhat current impression that water will wear away a rock, and showed

that instead of this the softer portions of rock are worn away by the action of sand and gravel washing over it.

In reply to a call for an account of the large boulder in the Manchester woods which had been visited by the party, the Secretary, Mr. JOHN ROBINSON, stated that he had taken great pleasure, during the morning, in visiting the curious boulder in the woods on the road to Essex. After a pleasant but difficult walk through woods and clearings, and finally by a scramble to the summit of the hill upon which many boulders rest they came to the rock designated. It is about half the size of Ship Rock, so justly celebrated, and in shape almost a cube, of perhaps twenty feet on a side, one end resting upon the ledge which forms the hill, and the other propped up about two feet by a wedge-shaped rock, the sharp end downwards; the base of the thus inverted wedge is against the under side of the boulder. Beneath is room for two persons to crawl, and the glacial scratches upon the ledge, being so well protected, are nearly perfect, while a sidelong glance shows the surface of the ledge to be quite smoothly polished. Mr. Robinson, after speaking of the importance of such characteristic boulders in demonstrating the glacial theory, and of the interest expressed by the late Prof. Agassiz while visiting this rock some years since, made, at the suggestion of some residents of Manchester, the following motion, which was unanimously accepted, after being seconded by Mr. Lewis N. Tappan, who offered some remarks on the subject, including reminiscences of Prof. Agassiz' visit to the spot:—

*Voted*, that the boulder visited during the morning by a party from the Essex Institute Field Meeting, held at Manchester, Oct. 2, 1874, be named and hereafter known as "Agassiz Rock."

Mr. PUTNAM on announcing the acceptance of the vote alluded to the marked propriety of attaching the name of Agassiz to so interesting a boulder, and stated that hereafter, in all the publications of the Essex Institute, this boulder would be known by the name now bestowed, and that in due time the name would be incorporated in works upon the subject of glacial action in New England.

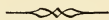
Rev. Dr. BOLLES, of Salem, was the next speaker, and took as his theme the reason why leaves change their color in the autumn, and why it is when the time has come that they fall from the trees. He explained that these things were not occasioned by frost, as so many suppose. Frost congeals foliage, rendering it flaccid, and it takes on the color of decay. Nor is it any process that comes from outside the leaf, but the result of certain changes that take place in the leaf itself. The leaf is a living thing, the workman of the plant, from which it gets its growth, blossom, and fruit. Dr. Bolles then entered into a minute description of a leaf, its framework and covering, the vegetable cells, from which it receives its color, and showed how, from some change in these cells the leaf ripened and took on the glowing colors of autumn foliage. He spoke of the assistance received in the study of this subject from the spectroscope, an instrument so powerful that it reaches and penetrates the mysteries of the planets, yet so delicate as to take cognizance of the chemistry of a tiny leaf-cell, unknown save as we analyze it through this wonder-working glass. The doctor also explained how, at the ripening of the leaf, a cork-like substance is formed at the junction of the stem with the twig, until the leaf is ready to fall at the slightest breath, without the bleeding and loss which would ensue from the violent disruption of the foliage from the tree.

The CHAIRMAN gave a description of a salamander which had been left by some one upon the stand. In answer to questions he explained that it was not poisonous, and indeed could not be made to bite. He then traced the distinctions between the salamander and the toad and frog, and between various varieties of salamanders common to this vicinity, giving an account of their development and habits.

Dr. BOLLES called attention to a new work undertaken by the Institute, in the forming of a museum representing the history of various manufactures, and said the Institute would be glad to receive contributions. The intention is to make a collection of pottery, types of different kinds of stone, china and earthenware; articles for kindling fire,—antique specimens of matches, tinder boxes, etc.; old paper,—writing and printing. Articles which possessors might deem worthless would perhaps be of service in making a link of great value.

On motion of Dr. BOLLES it was

*Voted*, That the thanks of the Essex Institute be tendered to Messrs. John Price, Lewis N. Tappan, J. W. Merrill, and Cheever, and the ladies of the town who had so kindly aided in the arrangements of the day. Also to the town authorities for the use of this hall.



REGULAR MEETING, MONDAY, OCTOBER 5, 1874.

THIS evening was appropriated to the commemoration of the first centennial of the revolution—the one hundredth anniversary of the meeting, in Salem, of that



memorable body, which here formally and finally resolved itself into a Provincial Congress, and thereby established in Massachusetts "a government of the people, by the people, and for the people."

The hall was well filled. Henry Wheatland presided, and a fine double quartette choir, under the direction of M. Fenollosa, Esq., who played a piano-forte accompaniment, sang some patriotic pieces in excellent style, which received warm applause. The exercises were opened with the singing of the following words, adapted for the occasion to the tune of "Scots wha hae wi' Wallace bled:"

Men that dare with wrong to fight;  
Men that battle for the right;  
Gird ye on your armor bright;  
Hark the Tocsin's call!  
Tyranny with latest breath,  
Struggling onward to its death,  
Still with frantic madness saith,  
Liberty shall fall!

Right and wrong in desperate strife;  
Front to front, and life for life,  
Reckless of the ruin rife;  
Meet in conflict dire!  
Lighting up our western sky;  
Harbinger of vict'ry nigh;  
See! the flames are mounting high;  
Kindles Freedom's fire!

What though King's strong arm assail;  
This the light makes tyrants pale;  
God and Justice will prevail,  
Now and evermore.  
Every form of wrong shall die!  
Perish every vaunted lie;—  
Lo! the radiance from on high  
Lights Columbia's shore.

Men that dare with wrong to fight;  
Men that battle for the right;

Now is past Oppression's night;  
 Breaks the coming morn!  
 Look, behold the morning star  
 Freedom's pathway gilds afar;  
 While behind her conquering car,  
 See a Nation born!

Dr. Wheatland then introduced ABNER C. GOODELL, Jr., Esq., Vice President of the Historical Department, who proceeded to deliver an elaborate and most admirable oration on the subject of the commemoration, which was attentively listened to, and at various points emphatically applauded. This valuable contribution to our historical literature, in which was given a minute history of the occurrences which led to the meeting whose one hundredth anniversary the society had met to celebrate, will soon be published in the "Historical Collections" of the Institute, and be accessible to all who take an interest in the great events here transacted and commemorated.

Mr. Goodell first drew from the Greek mythology a parallel between the story of the Greek founder of Athens and the genius of independence in creating the harmonious confederation of States. He followed this with a review of the relations existing between Great Britain and the American colonies one hundred years ago, especially what took place in Salem at that time—the removal of the General Court, etc. Speaking of this court, he said, When the whole Assembly met here in June, the upper room was the hall of the representatives. The council chamber may have been below, or more likely in the old tavern opposite, on the site now covered by the Stearns Building; while the governor, doubtless, had rooms not far distant, or possibly he may have remained at his headquarters in Danvers. On this occasion; viz., in October, the whole body of legislators, consisting of the assembled

ninety, found ample space in the court room, which was fifty feet long and thirty feet wide. The Assembly organized; John Hancock was chosen chairman and Benjamin Lincoln, clerk. A committee was then appointed to consider the governor's proclamation, and to consult on measures to be adopted, and the Assembly again adjourned. On Friday, the 7th of October, the committee reported four resolutions, concluding with the declaration that the grievances which they set forth were such as "in all good governments," had "been considered among the greatest reasons for convening a Parliament or Assembly," and that the proclamation was further proof of the necessity of "most vigorous and immediate exertions for preserving the freedom and constitution" of the province. The resolutions were immediately adopted. Having thus solemnly renounced the authority of Parliament, and affirmed the fundamental right of the people to institute a government, when, in their judgment the regular administration had overstepped the limits of the constitution, they adjourned to more comfortable quarters at Concord, to meet on the following Tuesday. Here they continued their sittings, with a few weeks' intermission, until the 10th of December. At Concord they organized the Congress by raising Hancock to the presidency, and made Lincoln their secretary. Their progress toward practical independence was now sure and speedy. Before the end of October, all constables and collectors of taxes had submitted to their order to withhold payment from Harrison Gray, the province treasurer, and to return their collections to Henry Gardner, who soon after was appointed receiver general; and with closed doors and under a solemn pledge of secrecy, they had resolved upon the momentous subject of "the most proper time" to procure arms and ammunition by unanimously adopt-

ing a report that "now is the time!" By midsummer three sessions had been held, had transacted business, and finally dissolved. On the day of their dissolution they again assembled, by the recommendation of the Continental Congress, as an independent government under the charter. Before this reorganization, the established tribunals of justice, which had either ceased to hold sessions or were disregarded by the people, had been replaced by a Court of Inquiry, to insure the preservation of order; the establishment of a navy had been favorably reported upon, and the great work of raising and equipping an army had been accomplished. Under the new style of government, the council and representatives removed the judges who had been appointed by royal governors, and issued commissions to new magistrates of their own selection. Thus, in less than ten months from the taking of their first bold step at Salem, the new régime was in the full exercise of the three great functions of government—legislative, judicial and executive. While the Legislature was thus employed, the people were busy arming and organizing the militia. Through the fall and winter, colonels of regiments and other military officers, who were not in known sympathy with the popular movement, were either forced to resign, or the men under their command voluntarily disbanded and reorganized under other leaders. New companies were started, beginning with an artillery company in Marblehead, for which subscriptions were opened early in November. The expedition of Colonel Leslie, on the 26th of February, 1775, and the affair at the North Bridge in Salem, when the first bloodshed of the revolution occurred, present a theme inviting discussion, when the anniversary of that day arrives. Mr. Goodell recapitulated the events of these nine months as follows:—

Here, we have seen, were convened the last Provincial Assembly and first Provincial Congress ; here were chosen the first delegates to the Continental Congress ; here the assembled province first formally renounced allegiance to the Imperial Legislature ; here was made the first attempt to enforce the last oppressive acts of Parliament, and here that attempt was resisted ; here, though no mortal wound was given, was shed the first blood of the American Revolution ; here was first organized the nucleus of an army ; and here the banner of independence first spoke defiance, as it flapped and rustled in the wind.

The choir next sang a German National Hymn, from Mendelssohn's four part songs, commencing,

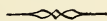
"Thro' deepest gloom the night wind cold," etc.

In conclusion the choir sang Julius Eichberg's National Hymn,

"To thee, O country."

The President then invited the company to partake of a basket collation which had been provided in the ante-rooms, and a pleasant season of social enjoyment terminated this interesting commemoration.

Otis P. Lord of Salem, Lewis N. Tappan of Manchester and J. W. Merrill of Cambridge were elected resident members.



REGULAR MEETING, MONDAY, OCTOBER 19, 1874.

MEETING this evening at 7.30 o'clock. The PRESIDENT in the chair. Records of preceding meeting read.

The SECRETARY announced the following correspondence :—



From E. P. Boon, New York, Oct. 15; James S. Bryant, Hartford, Sept. 21; C. H. Dall, Boston, Sept. 21, 24; C. C. Dawson, New York, Oct. 15; Charles H. Higbee, Boston, Oct. 13; F. E. Hotchkiss, New Haven, Conn., Oct. 3; G. M. Levette, Indianapolis, Ind., Sept. 26; Alfred M. Mayer, Hoboken, N. J., Oct. 3; Daniel A. Rogers, Chicago, Ind., Sept. 24; T. W. Silloway, Boston, Oct. 3, 7; Mary W. Towne, Sept. 30; Bordeaux, Société Linneenne, Sept. 14; Kjobenhavn, det Kongelige Danske Videnskabernes Selskab, Sept. 7; New York Lyceum of Natural History, Oct. 12; New York State Library, Sept. 25; Somersetshire Archaeological and Natural History Society, Taunton, Sept. 14; Trinity College Library, Oct. 6; Worcester Public Library, Oct. 2, 7.

## The LIBRARIAN reported the following additions :—

### *By Donation.*

- ANAGNOS, M., Boston. Reports of Blind Institutions, 46.
- BOLLES, E. C. Principles of Masonic Law, by Mackey. 1 vol. 8vo. Hymns for the Sanctuary. 1 vol. 8vo. Putnam's Phalanx. 1 vol. 8vo. Gloria Patri. 1 vol. 8vo. Portland Reference Book, 1852-53. 1 vol. 12mo. Autobiography of L. Norton. 1 vol. 12mo. Life of Wm. Penn, by T. Clarkson. 1 vol. 8vo. Mrs. Marsh's Novels. 2 vols. 8vo. The Widower. 1 vol. 8vo. Miscellaneous pamphlets, 76.
- BRYANT, JAMES S., Hartford. Mining Statistics west of the Rocky Mountains, 1870. 1 vol. 8vo. American Sunday School Magazine, 1824. 1 vol. 8vo. Burgh's Dignity. 1 vol. 8vo. Bellamy's True Religion. 1 vol. 12mo. Willison's Meditations. 1 vol. 12mo. Murray's English Grammar. 1 vol. 12mo. Butler's General History. 1 vol. 16mo. An Autobiography by John B. Gough. 1 vol. 12mo. Adam's Latin Grammar. 1 vol. 16mo. Memoir of Rev. M. Henry. 1 vol. 12mo. Blair's Lectures. 1 vol. 16mo. English Reader. 1 vol. 12mo. Beauties of Creation. 1 vol. 12mo. Zion's Pilgrim. 1 vol. 16mo. Solymen and Almena. 1 vol. 16mo. William's Sermon. 1 vol. 8vo. Farewell Letters by W. Ward. 1 vol. 12mo. Webster's American Selection. 1 vol. 12mo. History of Animals. 1 vol. 12mo. Dwight's Geography. 1 vol. 12mo. The Battle of Bunker Hill; a Poem by R. Emmons. 1 vol. 12mo. Wilkington's Historical Beauties for Young Ladies. 1 vol. 12mo. Thoughts on Divine Goodness. 1 vol. 12mo. Flint's Dictionary. 1 vol. 12mo. Dwight's Psalms. 1 vol. 16mo. The Widow of the Village. 1 vol. 16mo. Nettleton's Village Poems. 1 vol. 16mo. Hartford Directories, 1867, 1868, 1869, 1870, 1871, 1872, 1873. Hartford City Guide, 1871. 1 vol. 12mo. Macgowan's Life of Joseph. 1 vol. 12mo. Miscellaneous pamphlets, 86.
- COOKE, C. Rockford City Directory for 1869. 1 vol. 8vo.
- DAWSON, CHAS. C., New York. Dawson Family Records, by donor. 1 vol. 8vo. Albany, 1874. Guide Books, 27. Miscellaneous pamphlets, 38.
- ELLIOTT, E. B., Washington, D. C. Report on the Commerce and Navigation of the United States, 1873. 1 vol. 8vo. Report on Immigration, by E. Young, 1871. 1 vol. 8vo. Monthly Reports of the Chief of the Bureau of Statistics, Treasury Department, July-Dec., 1873, Jan.-May, 1874. 11 pamphlets.
- GREEN, Dr. S. A., of Boston, Mass. Forty-Sixth Annual Report of the Controller's of Public Schools of Penn., 1864. 1 vol. 8vo. Annual Report of the Boston City Hospital, 1873-74. 1 vol. 8vo. Miscellaneous pamphlets, 26.
- HOTCHKISS, FRANK E., of New Haven, Conn. Year Book of the City of New Haven, 1873. 1 vol. 8vo. Report of the Board of Education of Conn., 1874. 1 vol. 8vo. Report of the Board of Education of the New Haven City School District, 1874.
- LEE, F. H. Dexter Smith's Paper, 8 numbers. Folio, 15 numbers. Musical Bulletin, 9 numbers. Brainard's Bulletin, 17 numbers. Miscellaneous pamphlets, 15.

- LEE, JOHN C. Commercial Bulletin, Sept. 5, 12, 19, 1874.  
 LEVETTE, G. M., Indianapolis, Ind. Geological Survey of Indiana, 1873. 1 vol. 8vo. Indiana Agricultural Reports, 1873. 1 vol. 8vo.  
 MILES, W. A., New York. New York Directories, 1871, 1872, 1873. 3 vols. 8vo.  
 MERRITT, L. F. Shanghai Budget, June 20, 27, July 4, 11, 18, 1874. Essex County Mercury, several numbers.  
 PALFRAY, C. W. Miscellaneous pamphlets, 27.  
 PUTNAM, F. W. Annual Report of the Indianapolis Board of Trade, Jan., 1874. Mineral, Manufacturing and Agricultural Resources of Indiana, by E. T. Cox, 1873.  
 PUTNAM, GEO. G. Democratic Review, 12 vols. 8vo.  
 ROBINSON, JOHN. Miscellaneous pamphlets, 300.  
 SMITH, Prof. J. L., Louisville, Ky. Scientific Researches. 1 vol. 8vo. 1873.  
 SPENCE, F. H. Catalogus Universitatis Brunensis, 1873. 8vo pamph.  
 STICKNEY, M. A. Miscellaneous pamphlets, 150.  
 U. S. PATENT OFFICE. Official Gazette, Sept. 1, 8, 15, 22, 29, 1874.  
 WATERS, J. G. Speeches on the Indian Bill, 1830. 1 vol. 8vo. Youth's Instructor. 1 vol. 12mo. Sermons by J. Flint. 1 vol. 8vo. The Seaman's Daily Assistant. 1 vol. 8vo. Mass. Register, 1816. 1 vol. 12mo. Moore's Strictures, 1 vol. 12mo. Bowditch's Practical Navigator. 1 vol. 8vo. American Coast Pilot. 1 vol. 8vo. Moore's Navigation. 1 vol. 8vo. Coaster's Companion. 1 vol. 8vo. Miscellaneous pamphlets, 150.

*By Exchange.*

- AMERICAN PHILOSOPHICAL SOCIETY OF PHILA. Proceedings of, Vol. xiv, No. 92. Jan.-June, 1874. 8vo pamph.  
 BUFFALO SOCIETY OF NATURAL SCIENCES. Bulletin of, Vol. ii, No. 2, 1874. 8vo pamph.  
 NEW YORK STATE LIBRARY. Eighty-sixth Annual Report of the Regents of the University. 1 vol. 8vo. 1873. Twenty-third Annual Report of the New York State Cabinet of Natural History, 1869. 1 vol. 8vo. Miscellaneous Reports, 3.  
 SOMERSETSHIRE ARCHEOLOGICAL AND NATURAL HISTORY SOCIETY. Proceedings for 1873. 1 vol. 8vo.  
 PUBLISHERS. American Naturalist. American Journal of Science. Forest and Stream. Gardener's Monthly. Gloucester Telegraph. Hardwicke's Science Gossip. Haverhill Gazette. Ipswich Chronicle. Lawrence American. Lynn Reporter. Lynn Transcript. Medical and Surgical Reporter. Nation. Nature. Peabody Press. Salem Post. Salem Observer.

George H. Woods, of Salem, was duly elected a resident member.

Prof. E. S. MORSE, being called upon, gave a very interesting account of the theory of evolution, basing his remarks principally upon the structural development of birds and its relations to that of reptiles and other great natural families, both geological and extant. It was difficult to decide which most to admire, the fluency and

earnestness of his utterance, or the wonderful facility and rapidity of his illustrations with the pencil.

On motion of Rev. E. S. ATWOOD, it was unanimously voted that an invitation be extended to the Massachusetts Universalist Convention, now in session in Salem, to visit the rooms of the Institute and examine the various collections of the Association.

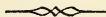
Rev. E. C. BOLLES then gave a very interesting and eloquent account of his observations among the various scientific collections of London, during his recent European tour. He spoke particularly of the immense library of the British Museum, the South Kensington and Bethnal Green Museums, the National Gallery of Paintings, the Jermyn Street Museum with which Huxley is connected, the East India Museum and the Kew Botanic Gardens, describing their collections, explaining their arrangement and purposes, and expatiating eloquently on their influence upon the useful education of the public. The sums spent for these collections by the government, the men of wealth and the friends of science, seem almost fabulous, and their perfection in the several departments is wonderful.

Mr. Bolles concluded by moving that a new department be added to the Institute, or put in charge of a curatorship already established, viz. : a museum of Technology, or Applied Science. Such a collection had been commenced on a small scale and arranged in the ante-room in such a manner as to make the plan intelligible, and the audience were invited to examine it after the adjournment. The specimens illustrated the different processes in the manufacture of porcelain and pottery, from the crude clay to the highly ornamented and finished

article ; also the several processes in chromo lithography. Mr. Bolles likewise brought from Europe for this department about a thousand specimens of fibres, including those on which the British government has expended so much experiment in India, which will be an important and valuable nucleus for the new department.

The plan excited much interest and was regarded with high favor. Several gentlemen announced that they already had, or could easily procure, suites of specimens in various arts, which they would be glad to add to the Institute treasures.

The subject was referred to the Directors, and there is a fine prospect of commencing the new department with valuable contributions, and under the most favorable auspices for constant and large additions.



LISTS OF BIRDS OBSERVED AT VARIOUS LOCALITIES CONTIGUOUS  
TO THE CENTRAL PACIFIC RAILROAD, FROM SACRAMENTO  
CITY, CALIFORNIA, TO SALT LAKE CITY, UTAH.

BY ROBERT RIDGWAY.

THE observations upon which the following notes are based were made in connection with the field work of the U. S. Geological Exploration of the Fortieth Parallel, in charge of Mr. Clarence King, U. S. Geologist, during portions of the years 1867, 1868 and 1869.

The present paper is a mere abstract of that portion of the zoölogical report\* of the Survey relating to the character and distribution of the local avifaunæ encountered along the route of exploration, and is published in its present form in order to acquaint ornithologists, as soon as possible, with the results of ornithological investigations made by the Expedition.

The country traversed by the Survey in the course of its field work is embraced chiefly between the parallels of 39° and 42° North latitude,

---

\*In press.

and the meridians of 111° and 122° West longitude. The localities at which observations were made upon the fauna are classified as follows:—

## I. THE SACRAMENTO VALLEY.

- a.* Outskirts of Sacramento City.  
*b.* Across the plains from Sacramento to the Sierra Nevada.

## II. THE SIERRA NEVADA.

- a.* The western foot-hills.      *b.* The pine region.  
*c.* The summit of Donner Pass.   *d.* The eastern slope.

III. WESTERN NEVADA (*area of the eastern drainage of the Sierra Nevada, or western Basin drainage*).

- a. Eagle Valley. b. Carson Valley. d. Washoe Valley.  
e. Truckee Meadows (above the Virginia Mountains).  
f. Truckee Valley (below " " "  
g. Adjacent plateaux. h. Islands of Pyramid Lake.

IV. EASTERN NEVADA, SOUTHERN IDAHO AND NORTHWESTERN UTAH (*interior Basin drainage*).

- a. West Humboldt Mountains.    b. Toyabe Mountains.  
c. Ruby Mountains.                d. East Humboldt Mountains.  
e. Upper Humboldt Valley.  
f. Lower Humboldt Valley, "Sink" of the Humboldt.  
g. Soda Lake, Carson Desert.    h. Ruby and Franklin Lakes.  
i. Thousand Spring Valley.      j. "City of Rocks," Southern Idaho.  
k. Deep Creek, Northwestern Utah.

V. EASTERN UTAH (*Wahsatch and Uintah drainage, or eastern Basin drainage*).

- a. Salt Lake valley. b. Islands in the Great Salt Lake.  
c. Parley's Park (Wahsatch Mountains).  
d. Pack's Cañon (western spur of Uintah Mountains).  
e. Kamas Prairie. f. Provo Cañon (pass of the Provo River).

## I. SACRAMENTO VALLEY.

- a.* Catalogue of birds breeding in the immediate vicinity of  
Sacramento City in June, 1867.

1. *Thryomanes Bewicki spilurus*. Common?
2. *Dendroica æstiva*. Abundant.
3. *Geothlypis trichas*. Abundant.



4. *Icteria virens longicauda*. Abundant.
5. *Hirundo horreorum*. Abundant.
6. *Progne subis*. Abundant.
7. *Petrochelidon lunifrons*. Abundant.
8. *Vireo gilvus Swainsoni*. Common.
9. *V. pusillus*. Common.
10. *Collurio Ludovicianus* (*excubitoroides* ?). Common.
11. *Carpodacus frontalis*. Abundant.
12. *Chrysomitris tristis*. Abundant.
13. *Coturniculus passerinus perpallidus*. Common.
14. *Chondestes grammaca*. Abundant.
15. *Melospiza melodia Heermanni*. Common.
16. *Spizella Breweri*. Common.
17. *S. socialis*. Common.
18. *Hedymeles melanocephalus*. Common.
19. *Guiraca cærulea*. Common.
20. *Cyanospiza amæna*. Common.
21. *Pipilo erythrophthalmus Oregonus*. Common.
22. *Agelaius phœniceus gubernator*. Very abundant.
23. *A. tricolor*. Very abundant.
24. *Xanthocephalus icterocephalus*. Very abundant.
25. *Sturnella neglecta*. Common.
26. *Icterus Bullocki*. Very abundant.
27. *Tyrannus verticalis*. Abundant.
28. *Sayornis nigricans*. Common?
29. *Contopus Richardsoni*. Abundant.
30. *Empidonax pusillus*. Abundant.
31. *Coccyzus Americanus*. Rare.
32. *Calypte annæ*. Common.
33. *Trochilus Alexandri*. Common.
34. *Colaptes auratus Mexicanus*. Rare.
35. *Otus vulgaris Wilsonianus*. Common.
36. *Speotyto cunicularia hypugæa*. Abundant.
37. *Falco sparverius*. Abundant.
38. *Zenaidura Carolinensis*. Abundant.
39. *Ægialitis vociferus*. Abundant.
40. *Ardea herodias*. Common.
41. *Herodias alba egretta*. Rare.
42. *Butorides virescens*. Abundant.
43. *Nyctiardea grisea nævia*. Common.
44. *Gallinula chloropus galeata*. Abundant.
45. *Fulica Americana*. Abundant.
46. *Anas boschas*. Abundant.

47. *Chaulelasmus streperus*. Abundant.
48. *Querquedula cyanoptera*. Abundant.
49. *Aythya* ——— sp? Abundant.
50. *Larus* ——— sp? Abundant.
51. *Sterna Forsteri*? Abundant.
52. *Hydrochelidon flissipes*. Very abundant.

b. List of species observed among the oaks of the plains  
between Sacramento City and the foot-hills of the  
Sierra Nevada, June and July, 1867.

1. *Parus atricapillus occidentalis*? Common.
2. *Troglodytes ædon Parkmanni*. Common.
3. *Eremophila alpestris chrysolæma*. Abundant.
4. *Pica melanoleuca Nuttalli*. Very abundant.
5. *Corvus Americanus*. Very abundant.
6. *Myiarchus crinitus cinerascens*. Common.
7. *Picus Nuttalli*. Common.
8. *Melanerpes formicivorus*. Abundant.
9. *M. torquatus*. Abundant.
10. *Strix flammea pratincola*. Common.
11. *Scops asio*. Common.
12. *Buteo lineatus elegans*. Common.
13. *Rhinogryphus aura*. Rare.

## II. SIERRA NEVADA.

a. Species seen among the western foot-hills, July, 1867.

1. *Polioptila cærulea*? Abundant.
2. *Psaltiriparus minimus*. Abundant.
3. *Certhia familiaris fusca*. Common.
4. *Troglodytes ædon Parkmanni*. Common.
5. *Dendroica æstiva*. Abundant.
6. *Chrysomitris Lawrencei*. Common.
7. *Pipilo fusca crissalis*. Common.
8. *Cyanocitta Floridana Californica*. Common.
9. *Lophortyx Californicus*. Common.

- b. Species found in the pine forests of the western slope of the  
Sierra Nevada, at an altitude of 5,000 feet, in July, 1867.
1. *Turdus migratorius*. Common.
  2. *T. Swainsoni ustulatus*. Abundant.
  3. *Sialia Mexicana*. Common.

4. *Cinclus Mexicanus*. Common.
5. *Myiadestes Townsendi*. Common.
6. *Dendroica Auduboni*. Common.
7. *Pyrranga Ludoviciana*. Common.
8. *Junco hyemalis Oregonus*. Common.
9. *Picicorvus Columbianus*. Abundant.
10. *Cyanura Stelleri frontalis*. Abundant.
11. *Picus albolarvatus*. Common.
12. *Sphyrapicus varius ruber*. Rare.
13. *Aquila chrysaetus Canadensis*. Common.

c. Species breeding at an altitude of about 7,000 feet on  
the Sierra Nevada, July, 1867.

1. *Zonotrichia leucophrys intermedia*. Very abundant.
2. *Junco hyemalis Oregonus*. Abundant.
3. *Sialia Mexicana*. Abundant.
4. *Turdus migratorius*. Abundant.

d. Species breeding on the eastern slope of the Sierra Nevada  
(July, 1867, and April and May, 1868).

1. *Turdus migratorius*. Abundant.
2. *T. Swainsoni ustulatus*. Common?
3. *Sialia Mexicana*. Common.
4. *Cinclus Mexicanus*. Common?
5. *Regulus calendula*. Common?
6. *Certhia familiaris fusca*. Common?
7. *Parus montanus*. Abundant.
8. *Sitta Carolinensis aculeata*. Abundant.
9. *S. pusilla pygmæa*. Abundant.
10. *Helminthophaga celata*. Common.
11. *Myiodioctes pusillus*. Common?
12. *Dendroica Auduboni*. Common.
13. *Geothlypis Macgillivrayi*. Abundant.
14. *Carpodacus Cassini*. Abundant.
15. *Chrysomitris pinus*. Abundant.
16. *Melospiza Lincolni*. Common.
17. *Junco hyemalis Oregonus*. Abundant.
18. *Zonotrichia leucophrys intermedia*. Abundant.
19. *Passerella iliaca megarhynchus*. Abundant.
20. *Pipilo erythrophthalmus Oregonus*. Abundant.
21. *Picicorvus Columbianus*. Abundant.
22. *Cyanura Stelleri frontalis*. Abundant.



# BULLETIN

OF THE

## ESSEX INSTITUTE.

---

VOL. 6. SALEM, MASS., NOVEMBER, 1874. No. 11.

---

One Dollar a Year in Advance. 10 Cents a Single Copy.

---

REGULAR MEETING, MONDAY, NOVEMBER 2, 1874.

MEETING this evening at 7.30 o'clock. PRESIDENT in the chair. Records read.

The SECRETARY announced the following correspondence :—

From A. C. Goodell, jr., Oct. 16; L. C. Herrick, Woodstock, Ohio, Oct. 28; C. H. Higbee, Boston, Oct. 27; E. W. Leavenworth, Syracuse, N. Y., Oct. 18; J. W. Manning, Reading, Oct. 26; John R. Rollins, Lawrence, Oct. 29; Buffalo Historical Society, Oct. 30; Gottingen Die Königliche Gesellschaft der Wissenschaften, Juli 6; New York Historical Society, Oct. 31; New York State Library, Oct. 28, 29; Ohio Historical and Philosophical Society, Oct. 3; Portland Institute, Oct. 20; Worcester Public Library, Oct. 23.

The LIBRARIAN reported the following additions to the library :—

*By Donation.*

BOLLES, E. C. Miscellaneous pamphlets, 9.

HATCH, LEMUEL B. The Descendants of Wm. Hatch, of Scituate, Mass., 1874. The Syrian Protestant College, 1874.

LEAVENWORTH, E. W., of Syracuse, N. Y. Genealogy of the Leavenworth Family in the United States, by donor. 1 vol. 8vo. Syracuse, 1873.

OFFICE OF THE CHIEF OF ENGINEERS. Report upon Ornithological Specimens collected in 1871, 1872, 1873. Catalogue of Plants collected in 1871, 1872, 1873.

SILSBEE, E. A. The White Mountain Guide Book. 2 vols. 12mo. Lunar Obser-



variations, by E. C. Ward. 1 vol. 8vo. Southern Quarterly Review, 2 numbers. The Athenæum, 10 numbers. Allen's Victoria Regia. 1 vol. folio.

U. S. PATENT OFFICE. Official Gazette for Oct. 13, 1874.

WATERS, J. G. Palestine and the Hebrew People. 1 vol. 16mo. The Books and Characters of the New Testament. 1 vol. 16mo. Lesson on the Old Testament. 1 vol. 12mo. Miscellaneous pamphlets, 40.

WILLSON, E. B. Record of Unitarian Worthies, May, July, Oct., 1874.

WOLCOTT, Mrs. S. B. Catalogue of Harvard College Library. 4 vols. 8vo. The Mass. System of Common Schools. 1 vol. 8vo. 1849. Abstracts of Mass. School Returns, 1839-40, 1840-41, 1845-46. 3 vols. 8vo. Pitkin's Statistics. 1 vol. 8vo. Fisk's Greek Grammar. 1 vol. 12mo. Natural History of the Bible. 1 vol. 12mo. Goodrich's Greek Grammar. 1 vol. 16mo. Hamel's French Grammar. 1 vol. 12mo. Elements of Euclid. 1 vol. 8vo. Pelham's System of Notation. 1 vol. 12mo. Sheridan's Grammar of the English Language. 1 vol. 12mo. Coleman's Discourses. 1 vol. 12mo.

### *By Exchange.*

BOSTON PUBLIC LIBRARY. Bulletin for Oct., 1874.

CROSSE ET FISCHER. Journal de Conchyliologie, 3e Série, Tome xiv, No. 3, 1874.

GEOLOGICAL SURVEY OF CANADA. Report of Progress for 1872-73. 1 vol. 8vo.

INSTITUT HISTORIQUE IN PARIS. L' Investigateur, 40 Année, Juin-Juillet, 1874.

KONGELIGE DANSKE VIDENSKABERNES SELSKAB I KJØBENHAVN. Oversigt, 1873, No. 3. 1874, No. 1.

NEW YORK STATE LIBRARY. New York Legislative Documents for 1870, '71, '72, '73, '74. Laws. 8 vols. 8vo. Senate Journals. 4 vols. 8vo. Senate Documents. 22 vols. 8vo. Assembly Journals. 8 vols. 8vo. Assembly Documents. 52 vols. 8vo. Manual for the Use of the Legislature of New York, 1871. 1 vol. 12mo.

PEABODY ACADEMY OF SCIENCE. Sixth Annual Report for 1873.

SMITHSONIAN INSTITUTION. Smithsonian Contributions to Knowledge, Vol. xix. 1 vol. 4to. Smithsonian Miscellaneous Collections, Vols. x, xi, xii. 3 vols. 8vo. Smithsonian Reports, 1871, 1872. 2 vols. 8vo.

SOCIÉTÉ D' ACCLIMATATION. Bulletin Mensuel, 3me Série, Tome i, No. 5, Mai, 1874. No. 6, Juin.

SOCIÉTÉ D' ANTHROPOLOGIE IN PARIS. Bulletin, 2e Série, Tome viii, 5e, 6e, Fascicule, 1873. Tome ix, 1er Fascicule, 1874.

VEREIN FÜR ERDKUNDE ZU DRESDEN. x Jahresbericht. 8vo pamph. 1874.

YALE COLLEGE. Catalogue of the Officers and Students in Yale College, 1874-5.

ZEITSCHRIFT FÜR DIE GESAMMTEN NATURWISSENSCHAFTEN IN BERLIN. Band ix, Neue Folge, 1874.

PUBLISHERS. American Naturalist. Forest and Stream. Gloucester Telegraph. Haverhill Gazette. Ipswich Chronicle. Lawrence American. Lynn Reporter. Lynn Transcript. Medical and Surgical Reporter. Nation. Nature. Peabody Press. Salem City Post. Salem Observer.

HON. JAMES KIMBALL read two petitions, signed some one hundred and fifty years since, to the proper authorities, setting forth the necessity of preventing the construction of dams or other obstructions to the free passage of fish from the sea to the inland ponds, to deposit their

spawn during the appropriate season ; giving the reasons therefor, and urging the great value of the fisheries to our people. It seems that at this early period in our history there were persons cognizant of the importance of those measures which are now receiving due attention from the national and several of our State governments, commissions having been appointed to take this subject into consideration and to devise means to restock our rivers and streams with food fishes, which in the early settlement furnished an abundant supply. The preservation of fish received the earliest attention of the colonists, as they were one of the great "staples" of Massachusetts, being not only a source of supply for their own wants, but of great profit in their foreign trade ; a cargo of fish often procured for them a return cargo of wines, spices, and other luxuries. In the construction of the first mills reservations were made in the grants, "not to stop or hinder the alewives from going up to the great pond." Many of our older citizens may well remember the attention that was given to the removal of all obstructions that would prevent the free passage of the alewives and other fishes to and from the spawning places, by our town authorities, in the appointment of fish committees, whose duties were not only to remove these obstructions, but prevent the taking of fish only on certain days in each week, and also to prescribe the manner that a due proportion may be preserved.

Previous to 1760 but few changes had been effected, and it was not until the beginning of the present century that the old landmarks, once prominent in our local descriptions, began to disappear, and such has been the rapid march of progress, that during the last three-quarters of a century all of them are obliterated.

Improvements required by the progressive tendencies of the age, have contributed in effacing places once

famous in our local history. The once beautiful North and South rivers, so important to the first settlers of the town as their principal and most convenient highway, and which afforded ample accommodations to the early commerce of the town, are now reduced to sluggish streams, hardly receiving the purifying influences of the ocean tides, by reason of the obstructions required in the service of trade and manufactures.

To the Justises of the Generall Seshions of the Peace to be holden at Salem for the County of Essex, the last Tuesday of June, 1725.

"The Humble Petition of Thomas Rich Humbly Sheweth. That the North-River in the Town of Salem runs Southwesterly into Severall Ponds, viz. Spring Pond, long Pond & Seder Pond where abundance of Fish passes in the Spring time of the year to spawn. Nevertheless several waires have been made across the Brook, within this few years, which have almost broke their usuall wonted Custom. I have made application to the Selectmen who inform me that it is with your Honours Consideration in that affair. I have this four years last past taken all the care I could in pulling down all the Waires in said Brooks to the severall Ponds once. I requested by a complaint to Justice Sewall & Justice Wolcott for a warrant, hoping to finde out them that had erected s<sup>d</sup> waires & I took a Constable with me then we found but one Waire. I have spent four days in the properest time of every last four years abovesaid. Sometimes I have pulled down seven Waires between Mr. Trask<sup>s</sup> Millpond & the Butts Bridge, this year I was but two days up the Brook but did not find any, but was informed that the fish were stopt in their Comeing down from the ponds, and if your Hon<sup>rs</sup> in your Wisdom See cause to order that affair, or else their wonted custom will be broke, which will make other fish as COD & HADDOCK scarce with us, for *such fish comes in after the above small fish for bait*; and if such inconveniences could be removed, fish might be as plenty as they were formerly, which would be a great benefit to the TOWN & COUNTRY, for which your Petitioner desires your Honours Consideration for his abovesaid trouble, and your Petitioner shall ever pray.

THOMAS RICH."

It seems that the labors of Mr. Rich were in his own opinion of some service, for another petition was presented the next year, which is here presented, verbatim.

"To the Honrball his maiesties Justses of in fear<sup>e</sup> cort, and generall seshions of the peace to Be holden at Salem for the county of Essex the last Tuesday of June, 1726.

It was considrd By the Honrball cort holden at Salem on the last Tuesday of June 1725, that Thomas Rich shuld tack care, and use all proper meanes that the Law Be observed and fulfilld with respect to

the fish being obstructed in thare pasing up the several brukes that leadeth to the several ponds. As spring pond, Long pond and seder pond. According to your honors order, I have taken All the cears I could And I hope to good effect By reason of the plenty of *cod & hadock* that have Byn this year. this was the fifth year that I have tacken cear concerning sd fish passing up sd Brucks four days pr year I have Bin up sd Brucks And wherupon several weares and other in cumbrances one sd Brucks. I am informed that theare is a brook that leadeth out of Ipswidg river to umphreys pond whar Abundans of fish used to pas formerly And if your honors In your wisdom see cas to order that afore it will Be A great Benefit not only to this town But allso to the country. I haue tacken cear five years last past the Select men tooock of my rates on year But that is too small Amotes to four days waden up the Bruckes to the small ponds. That if your honors in your wisdom see fit to Allow Sumthng for the managmut in that mater your petitioner shall for ever pray.

Salem Jun y<sup>e</sup> 21. 1726.

THOMAS RICHL."

"Its Considered by the Court that the petitioner be further Impowered and allowed for the year ensuing to remoue all obstructions in the Brooks as abovsaid."

(Endorsed) "partly granted."

Prof. E. S. MORSE gave some account of certain species of ants which construct receptacles under ground for the storage of their food, describing the manner in which these were made; also the ingenuity and skill displayed, and the division of labor adopted by these ants in the procuring of the food and in the other arrangements in the management of their domestic affairs.

He also described the habits of a family of spiders known as the trap door spiders, who also construct their domiciles under ground, which are tubular in shape and composed of the web filled in with the earth, and other materials that are cemented together by a glutinous matter which they secrete. They have at the entrance a trap door composed of fibres of the web filled with earth, bits of leaves, lichens, etc., so as to be completely disguised. The different species vary somewhat in the style of the

construction, though all are made upon the same general principles.

Rev. E. C. BOLLES reported progress in the formation and arrangement of the collection of specimens illustrating some of the industrial arts, specifying a few of the most interesting additions.

Mr. C. H. HIGBEE, with remarks relative to the articles, presented a series of Heliotypes from J. R. Osgood & Co., Boston, and also the following donations to the collections; from E. C. Mack a fire frame and several kitchen utensils of the olden times; from J. C. Lee specimens of pottery from Torquay; from John Pickering a cast-iron fire place back with the date of 1660, and the initials I. A. P., for John and Alice Pickering, taken from the Pickering house on Broad street, which was built several years previous to the above date by John Pickering, the ancestor of the present owner of the estate. Adjourned.



REGULAR MEETING, MONDAY, NOVEMBER 16, 1874.

MEETING this evening at 7.30 o'clock. PRESIDENT in the chair. Records read.

The SECRETARY announced the following correspondence:—

From H. B. Dawson, Morrisania, N. Y., Sept. 30; G. L. Goodale, Cambridge, Nov. 9; C. H. Higbee, Nov. 9; J. C. Holmes, Detroit, Mich., Nov. 12; Stanislas Meunier, Paris, Feb. 21; Robert Ridgway, Washington, D. C., Nov. 7; George H. Woods, Nov. 2; New York Lyceum of Natural History, Nov. 2.

The LIBRARIAN reported the following additions to the library:—



*By Donation.*

FLINT, GEO. F. Essays on Peace, on War. 1 vol. 12mo. 1827.

GREEN, Dr. S. A., of Boston, Mass. Sweetser on Consumption. 1 vol. 8vo. Thacher on Hydrophobia. 1 vol. 8vo. Brera's Treatise. 1 vol. 8vo. Sweetser on Digestion and Disorder. 1 vol. 8vo. Halsted's New Method of Curing Dyspepsia. 1 vol. 12mo. Jackson on Fever. 1 vol. 12mo. Constitution of the Mass. Charitable Mechanic Association. 1 vol. 12mo. Miscellaneous pamphlets, 16.

HOLMES, J. C., of Detroit, Mich. Third Annual Report of the Secretary of the State Pomological Society of Michigan, 1873. 1 vol. 8vo.

MACK, E. C. The National Era, 1852-1859, 415 numbers.

MEUNIER, STANISLAS, of Paris, France. Cours de Géologie Comparée, by donor. 1 vol. 8vo. 1874.

OFFICE OF THE CHIEF OF ENGINEERS. Report of the Board of Commissioners on the Irrigation of the San Joaquin, Tulare and Sacramento Valleys of the State of Cal. Report on the Compressive Strength, Specific Gravity, etc., by Q. A. Gillman.

U. S. PATENT OFFICE. Official Gazette, Oct. 20, 27, 1874.

WALTON, E. N. Miscellaneous pamphlets, 7.

WATERS, H. F. Calcutta Journal, 60 numbers.

*By Exchange.*

IOWA STATE HISTORICAL SOCIETY. The Annals of Iowa, July, 1874.

N. E. HISTORIC-GENEALOGICAL SOCIETY. Historical and Genealogical Register, Oct., Dec., 1874.

PHILA. ACADEMY OF NATURAL SCIENCES. Proceedings of the. Pt. ii. Apr.-Sept., 1874.

SOCIETY OF NATURAL SCIENCES OF BUFFALO. Bulletin of. Vol. ii, No. 3, 1874.

PUBLISHERS. Forest and Stream. Gardener's Monthly. Gloucester Telegraph. Haverhill Gazette. Ipswich Chronicle. Lawrence American. Lynn Reporter. Lynn Transcript. Medical and Surgical Reporter. Nation. Nature. Salem Post. Silliman's Journal. Salem Observer.

The SECRETARY reported specimens of glass ware, illustrating glass making, from W. LIBBEY, of the New England Glass Company. Also the manuscript speech of Charles Sumner, delivered in Faneuil Hall, Nov. 5, 1860, after his return from Europe, whither he had gone in search of health. It was received from Mr. Sumner's executors, through the instrumentality of Mr. R. S. Rantoul.

M. McPherson, of Salem, was elected a resident member.

The principal interest of the meeting centred in the Indian skeletons and relics, recently discovered on the

land of Mr. Wyman, near the new cemetery in Marblehead. A portion of the bones and the articles found were placed on the table. After the subject had been introduced by the PRESIDENT,

Mr. A. C. GOODELL, Jr., said that from a conversation with Isaac C. Wyman, Esq., the owner of the land where the bodies were found, he was led to visit the locality some two years ago,—in the hope of getting some further light respecting the location of the ancient Fort Darby; but upon viewing the premises he became satisfied that the curious and irregular hollows in the surface of the ground were not the marks of post holes or palisadoes, as had been conjectured, but were, in all probability, the work of Indians. His opinion was confirmed by a tradition in Marblehead that this spot was an Indian burying ground, and he resolved to verify it whenever he could make up a party including Mr. Putnam, the Director of the Museum, whose interest in aboriginal archæology is well known. His illness in the summer of 1873 prevented this excursion; and no opportunity was afforded until late this autumn, when, although Mr. Putnam was absent at the west, a party was hastily got together in order that the investigation might be made before the cold season set in. The party consisted of fourteen persons, including two experienced navvies, and the work was commenced late in the forenoon.

Four holes were sunk without success; but after lunch, one of the party, in digging a fifth hole, came to what he called a decayed root. The digging was instantly stopped until an examination had been made by Mr. Goodell, who drew out a human arm bone, and carefully removing the earth, uncovered a human skull. The other holes were now abandoned, and the entire party set to work, in the

most careful manner, to remove the earth, which consisted of a sandy loam, for a considerable space, above and to the north and west of the first skeleton. The result was the discovery of four skeletons, in the condition and position shown in the photographs.\* So carefully was the work performed, that not a bone or fragment was displaced. One of the skeletons was removed entire, by forcing a thin board, under it, horizontally, then placing a frame around it, and pouring in plaster of Paris until it was firmly held in place. Much credit is due to Dr. Johnson, and to Rev. Messrs. Atwood and Bolles, and especially to Mr. Cooke, for the skill and care with which the earth immediately about the skeletons was removed. The last named gentleman found, with a fifth skeleton—which is not shown in the photograph, as it was badly broken and decayed—the pieces of pottery, the broken pot or vase, a brass toy bell and two beads of European make, which were exhibited at the meeting.

Mr. WILLIAM P. UPHAM spoke of some references to Indian localities in that neighborhood, found in early deeds preserved among the records at the Court House. He called attention to a passage in Mourt's Relation, narrating the particulars of a voyage of ten men sent out from Plymouth in 1621, with Tisquantum and two other Indian interpreters, to visit the Massachusetts Indians, partly to see the country, partly to make peace with them, and partly to procure their truck. Mourt describes very minutely their passage along the coast for some miles, and then striking across the Bay and coming over to this shore, where they landed, and marched into the country. About four miles from the landing they came to where Nanepashemet, the Indian King, had lived. Not far from

---

\* These, prepared by J. W. and J. S. Moulton, may be had at the rooms of the Essex Institute, and at the Naturalists' Agency.

thence, in a bottom, they came to a fort built by the deceased King, described thus :—

“There were poles some thirty or forty foot long, stuck in the ground as thick as they could be set one by another, and with these they enclosed a ring some forty or fifty foot over. A trench breast high was digged on each side; one way there was to go into it with a bridge; in the midst of this palisado stood the frame of an house, wherein being dead he lay buried.

About a mile from hence, we came to such another, but seated on the top of an hill; here Nanepashemet was killed none dwelling in it since the time of his death.”

Mr. Upham's theory was, or, rather, he hazarded the conjecture, that the old expedition landed, perhaps, at Lynn; that the palisade fort was that which has long been known as the old Indian fort, on the Marblehead and Lynn road, near the junction of the road cut through from Salem a few years ago; and that the hill on which Nanepashemet was killed, was the very hill on which these remains were found. The distances agree very well with those in Mourt's Relation, and the remains of the palisadoed fort still traceable conform to the description of the fort which Mourt's people saw. Whether the bones of either of the bodies were those of Nanepashemet cannot, of course, be determined, but there are reasons for supposing that they may have been. The theory is certainly plausible.

Rev. E. S. ATWOOD gave some further particulars of the digging operations, and complimented Mr. Cooke for the exceeding care and skill which he exercised in uncovering the remains, expressing the opinion that to his patient labor the Institute was indebted for the perfect state in which the bones were reclaimed and removed.

Mr. CALEB COOKE gave an interesting account of his experience in examining Indian graves, both in this county and at the west, and stated that the place where these remains were found was on the top of a hill overlooking Salem harbor, west of the new cemetery, and known as Bessom's pasture. On the surface are irregular depressions marking the site evidently of the wigwams of a considerable village of Naumkeag Indians. In the rear of the brow of the hill, at the other end of the pasture, as he was informed by Mr. J. J. H. Gregory, may be seen a ridge of earth, with a ditch in front, running in a straight line across the pasture. This probably had palisades, and formed the defence of the village. On digging into these depressions, fragments of charcoal, as well as the shells of the *Natica*, *Pecten*, *Mytilus*, *Modiola* and *Mya*, also fragments and entire bones of mammalia and fishes, were met with; in the bottom of some of them a collection of stones was found, showing the evidence of having been exposed to the action of fire; mixed with them were fragments of charcoal and traces of ashes. It was just outside of one of these cellars that the skeletons on the table were found.

No. 1 of the photographs, in reality, consists of portions of two persons, one of them of middle age, the other, judging from the size and thinness of the pieces of the skull, that of a young person. This can be seen near the pelvis of the adult, and may have been a child buried in the arms or lap of its mother. Some of the bones of the legs of the adult are in a reversed position, showing that in this case there was a reburial, or that they were not buried until the body had decayed, and at the burial of the others these were gathered up and placed with them, being laid in as nearly a natural position as possible. This body was placed in the grave with the head



pointing in a northeast direction, while the rest were towards the southwest.

No. 2 was found on its back, and had the frontal portion of the skull badly crushed in. On the breast was found a shell of *Pyrula canaliculata*, and under one side of the jaw a small dark mass which on examination proved to have been a pouch made of bear's skin, between the folds of which two bones, of some small mammal, the species of which has not yet been determined, were found. Embedded in this mass, on the outside, were several small copper tubes, one of them showing traces of the cord by which they were fastened to the pouch. Behind the ear were found several more of these tubes, making in all, eight. These relics are evidently the remains of a pouch ornamented by these tubes, that was hanging at the neck when the body was buried. The tubes were from two inches and a half to three inches in length, and from an eighth to a quarter of an inch in diameter; they were made of very thin sheet copper, rolled up, with the edges just lapped, but not fastened.

Nos. 3 and 4 were facing each other, and with these nothing was found.

No. 5, which is not shown in the large photograph, but the position of which is seen in the stereoscopic picture, consisted of but a mere handful of bones, and was a little out of the line to the northeast of the others, its head about on a line with the pelvis of No. 4. Across the top of the head of this was found a stone pestle, six inches and three-quarters long, and at the side of the skeleton numerous pieces of pottery, consisting of a small cup nearly whole, which by careful measurement was found to contain just a gill when perfect, and the fragments of at least two other vessels, a small bell of European make, of a flattened globular form, thirteen-sixteenths of an inch

across by eight-sixteenths high, made of two pieces soldered together, two small blue glass beads, and two small polished jasper pebbles. The bell containing nothing to produce a sound, and the fact that only two beads were found, after a careful examination of the soil, lead to the supposition that these beads were once contained in the bell. With all of these bodies was found in varying quantities a dark red substance like ochre, which completely covered some of the bones.

These remains were found at a depth of from twenty to twenty-two inches, and had placed at both ends of each body a large rock upon which they were partly resting. Two of the rocks are shown in the photograph.

Prof. E. S. MORSE spoke of the importance of these relics in an archæological point of view, and the especial value of the skeleton upon the table, such carefully secured specimens being exceedingly rare. He also made some remarks upon stone and other relics, contending that the similarity of arrowheads wherever found was no indication of a community of origin, but rather of a common necessity which impelled to the fashioning of these implements in the forms which practical experience proved the simplest and most natural. He likewise complimented Mr. Cooke for the care and skill which he had displayed in the preservation of the remains.

Some conversation then took place about the custom of depositing mementos in graves. A suggestion was made that the worthless character of many of the relics found in Indian graves, such as broken pottery, etc., indicated the poverty of the Indians, but it was stated that the negro tribes in Africa, although quite as poor, were in the habit of burying really valuable articles with their

dead. Parkman says that the practice of burying treasures with the dead is not peculiar to the North American aborigines, and calls to mind the curious fact mentioned in the "London Times" of Oct. 28, 1865, in describing the funeral rites of Lord Palmerston, viz. :—

"And as the words, 'Dust to dust, ashes to ashes,' were pronounced, the chief mourner, as a last precious offering to the dead, threw into the grave several diamond and gold rings."

Dr. A. H. JOHNSON called attention to the bones upon the table, and, by means of a skeleton of the Caucasian race, pointed out the anatomical peculiarities of the Indian bones, illustrating the differences by comparing and contrasting the similar bones in the two races. The bones exhibited were preserved whole, as they lay in the grave. They were not in their natural combinations, but were laid together in a compact bundle, with some regard to symmetry, although not according to their anatomical structure.

Dr. Johnson regarded this collection of bones as a reinterment of one of the tribe or family. It was a practice among the Hurons, well known to the Jesuits, as stated by Parkman, at intervals of ten or twelve years, to collect together their dead and convey them to the common place of sepulture, where the great Feast of the Dead was celebrated with peculiar rites. From all quarters of the Confederate tribes the mourners began their march. The bodies remaining entire were borne on a kind of litter, while the disjointed bones, bundled like fagots, were wrapped in skins, and slung at the shoulders of the relatives. Thus the procession slowly defiled along the forest paths, uttering at intervals, in unison, a dreary, wailing cry, designed to imitate the voices of disembodied

souls, winging their way to the land of spirits, and believed to have an effect peculiarly soothing to the conscious relics which each man bore. In conformity with a kindred custom it is probable that this bundle of bones was disinterred from their original grave and reburied in the family or tribal lot.

Dr. Johnson made some further observations relative to the characteristics of the Indians, and expressed the opinion, founded on the statements of the most reliable historians, that the popular impression in regard to the number of aborigines in New England during the early settlements was very much exaggerated.

Rev. E. C. BOLLES gave a humorous account of the remarks of the bystanders, and the impressions prevalent among them, during the digging operations. He also said that a microscopic examination of the hair and skin found among the relics, revealed the fact that these were the remains of the paw of a bear, which was an ornament frequently worn by the red men. From the character of the relics preserved it was evident that an Indian of no little distinction was among those interred in this grave.

Before adjourning a vote of thanks was passed to Mr. Isaac C. Wyman, the owner of the ground, to Messrs. Roundey, Dolliyer and other citizens of Marblehead, for the interest they had manifested and the aid they had rendered in enabling the members of the Institute to conduct the examination which had produced such important results.

## SPECIAL MEETING, WEDNESDAY, NOV. 25, 1874.

MEETING this evening at 7.30 o'clock. The PRESIDENT in the chair. Records read.

The SECRETARY stated that JAMES STEELE MACKAYE delivered last evening for the benefit of the Institute his lecture on FRANCOIS DELSARTE. Mr. Mackaye is one of Delsarte's most successful pupils; and this lecture, the recital of his master's life and a fitting tribute to his memory, was listened to with marked attention and pleasure. Delsarte was born in the north of France, Nov. 11, 1811; a descendant of the Delsartos of Italy. His mother was a woman of remarkable refinement and intellectual culture, from whom he inherited his proud spirit, his love of beauty, and his devotion to truth. A very graphic account was given of the bitter struggles of his early days; the success that attended his first appearance on the stage; his subsequent brilliant career as a singer and actor, until an impaired voice compelled him to retire at the height of his fame; and of the subsequent devotion to his studies and the establishment of his "practical school of æsthetics and art" in Paris, which was very celebrated. He died July 20, 1871.

The Secretary also mentioned that Miss ANNA FINKENSTADT, of Newport, had rendered valuable assistance in the Institute course of lectures and concerts at Mechanic Hall on Monday evening, and on his motion it was

*Voted*, That the thanks of the Institute be presented to Mr. James Steele Mackaye, and Miss Anna Finkensadt, for their very acceptable contributions thus rendered in the promotion of the objects of the Institute.

Thomas High, of Marblehead, was elected a resident member.

[To be continued.]



# BULLETIN

OF THE

## ESSEX INSTITUTE.

---

VOL. 6.                      SALEM, MASS., DECEMBER, 1874.                      No. 12.

One Dollar a Year in Advance. 10 Cents a Single Copy.

---

SPECIAL MEETING, WEDNESDAY, NOV. 25, 1874.

[Continued.]

By special request Mr. F. W. PUTNAM exhibited the collection of living fishes and crayfishes which he had brought from the Mammoth Cave, and occupied the evening by giving an account of the specimens and the formation of the cave.

Mr. Putnam stated that his investigations were made while acting as an assistant on the Geological Survey of Kentucky, of which Prof. Shaler was the chief, and therefore he was able to work with great advantage, having been aided by the proprietors of the Mammoth Cave, through their courteous agent, Mr. Miller, and his assistant, Mr. Wilcoxson.

Mr. Putnam first made an allusion to the advanced character of the Kentucky Survey, and the broad and liberal principles upon which it had been based by the legislature of the state, which, by providing for a biological survey in connection with the geological, had thus

shown a far more advanced appreciation of the value of science in all its departments, than had many an older state which had simply looked with favor on geological surveys so far as it was thought they would give immediate returns in pecuniary value. He then proceeded to give a general account of the geology of the region, embracing the great cavernous country of which the Mammoth Cave and its vicinity form only a small part. He traced the present drainage of the region, and showed how a large part of the surface of the country was cut up by sink holes, or large circular depressions, in which the rain water accumulated and was then drained off by subterranean streams, to unite with the water of the Green River and its tributaries at a lower level, forming the caves through the immense beds of subcarboniferous limestone. He then explained how the caves, which exist in immense numbers throughout this whole limestone region, had been formed by the action of the carbonic acid in the rain water, and also by the wearing away of the rock by the sand and stones carried along by the streams. He said that no one could examine the caves without being convinced that their formation was wholly due to aqueous action in this way, and that in those chambers where the water was still at its work one could hardly fail to understand the process. In this way the caves have been cut for miles in extent, and to the depth, in some instances, of nearly three hundred feet from the surface. The upper chambers, or early river beds, become dry as the subterranean streams cut their way lower and lower into the limestone, just as the outside rivers cut their way deeper and deeper into the valleys. Many of the caves near the surface have become entirely dry from this deeper drainage, while in others at a little lower level, or in situations where the water from above has percolated through the

limestone, the dripping waters have formed the beautiful stalactites by the deposit of the carbonate of lime as each drop of water was freed from its carbonic acid. In such places one beholds the beauties of the formations within the cave, and there are to be seen the innumerable shapes of stalactites, from small tubes to massive pointed forms, and from delicate translucent curtains to immense fluted pendants, while from the water that drops to the floor below arise little hills of pure lime, or the immense pedestals which, in some cases, uniting with the stalactites above, form continuous columns, often fluted and corniced like the most elaborately carved pillars. The upper and dry chambers are left to stand until they shall be worn away by gradual erosion or be destroyed by some great convulsion of nature. The water action that is slowly depositing the lime anew in the form of stalactites and stalagmites is gradually closing the chambers that had previously been formed by its more active operations which are still going on in the passages below. Here the river action is to be seen, and one soon understands the formation of the beds of sand, the pits and the potholes seen in many parts of the caverns.

The present caves are thus unquestionably traced to the action of running water and the chemical action of the carbonic acid which have been going on for thousands and thousands of years. The denudation of the surface of the rock by the same and other causes must not be forgotten, and there is every reason to believe that this denudation, or gradual wearing away of the surface of the limestone, must have been immense. With this consideration before us the suggestion that caverns may once have existed in the upper part of this limestone, made when the rock was in connection with the salt water which formerly extended over this area, may not be considered too

bold a one to make, especially as some forms of life are found in these subterranean streams which, at present, seem to indicate a marine origin, and brackish water animals of certain forms once enclosed in the cave, would be very likely to survive under the peculiar conditions in which they were placed, as we know to have been the case under other, but somewhat similar, circumstances. That many, or, with two or three exceptions, nearly all of the thirty or forty species of vertebrates, articulates, mollusks and still lower forms, including a few plants, now discovered in the caves of Kentucky, are of comparatively late introduction, is probable from the fact that they are so closely allied to forms living in the vicinity of the caves, but that the blind fishes, the Chologaster and a few of the lower forms of articulates, as the Lernæan, parasitic on the blind fish, may have been inhabitants of the subterranean streams for a much longer period is worthy of consideration on the following grounds:—

First, the blind fish family has no immediate allies existing in the interior waters,\* the only species of the family, in addition to the three found in the Mammoth Cave, being known at present only from the rice ditches of the low coast of South Carolina.

Second, the Lernæan parasite is much more common on marine fishes than on strictly fluviatile species, and is more decidedly a marine than a fresh water form. These facts may therefore be taken as at least indicating the probability of the early origin of some part of the great cave system of the region of the Ohio valley, and while there may be nothing in the present structure of the caves to indicate their having been formed in part while in con-

---

\* In common with others I have considered the Heteropygii as belonging to the same order with the Cyprinodontes, but I now have, from further information of their structure, doubts as to their close association with that group. This subject will be presented on another occasion.



tact with salt water, the supposed erosion of the limestone and the modification of the early formed chambers by later action should be carefully considered before it can be denied that the caves were not, in some slight part, for a time, supplied with marine life. Until a specimen of *Chologaster*, or some other member of the family, has been obtained in the external waters of the Ohio valley, it is hardly logical to regard the family to which the blind fishes belong as one originally distributed in the rivers of the Ohio valley, and afterwards becoming exterminated in the rivers and only existing in two such widely different localities as the coast of South Carolina and the subterranean streams of the southwestern states. That marine forms of life are found in our fresh water lakes and rivers is known to be the case. The specimen of a shrimp exhibited was secured in the Green River near one of the outlets of the Mammoth Cave. The fact that in some of the waters of Florida fishes once marine are now confined to the fresh water lakes of comparatively recent formation, and that in the St. John's River, and others of that state, many marine and fresh water species are found associated, are evidence of the change that may take place in the habits of some marine animals, while a recent announcement of the *Gobiosoma* found in the Ohio River\* is another instance of a marine fish living in fresh waters.

Living specimens of both species of blind fishes (*Amblyopsis spelæus* and *Typhlichthys subterraneus*) were exhibited, and with them specimens of a fish never before collected in the waters of Mammoth Cave.

This last proves to be the *Chologaster Agassizii* described † from a young specimen obtained from a well in

\* PUTNAM, notice of *Gobiosoma molestum* from the Ohio. Am. Nat., viii, Feb., 1874.

† See PUTNAM, Amer. Nat., vi, p. 22, figs., Jan., 1872: Report Peabody Acad. Sci., 1871. Both articles are reproduced in "Life in Mam. Cave," 1872.



Lebanon, Tennessee. This fish, which reaches a length of nearly five inches, is of a delicate brownish tint, and is provided with dark and well developed eyes. Five specimens were secured by setting the seine over night several times, and though every effort was made to capture them by ordinary methods of seining, it proved unsuccessful, so shy and quick of movement is this singular inhabitant of the dark waters of the cave.

Its habits are in marked contrast to those of the blind fishes, for it lives at the bottom of the stream, darting with the utmost rapidity, and swimming rapidly by very quick lateral motions of its whole body, seldom coming near the surface, even in the aquarium, unless disturbed.

The blind fishes on the contrary swim slowly about or remain at rest near the surface of the water, and are very readily seen and easily captured by a careful and quick movement of the scoop net, though if, by means of the peculiar tactile organs with which they are so liberally supplied, they *feel* the least disturbance near them in the water, they move off by a quick dart and then swim slowly about; occasionally they drop to the bottom for a short time, but it is seldom that they are so seen.

An interesting fact respecting the theory of the adaptability of the color of an animal to its surroundings is observable in the Chologaster; they are so near the exact color of the dark sand of the bottom of the river in the cave that it is almost impossible to distinguish them as they lie at rest, and yet this can hardly be supposed in any way to add to their security, for as utter darkness prevails they would be equally safe, in that respect, if they had all the colors of the rainbow displayed on their bodies, and then probably their principal enemy is the large species of *blind* fish.

This Chologaster also gives the most conclusive evi-

dence that light is not necessary for the existence of coloration in animals, for here in total darkness is this most beautifully tinted fish.

From the present knowledge of the fauna of our rivers it can only be assumed, without a fact in favor of such an assumption, that the *Chologaster* is a later comer into the subterranean streams than its blind and colorless cousins, and it cannot now be maintained with any reason that the supposed peculiar adaptability to surface feeding was the cause of the survival of the blind fishes of the caves, and the want of the structure adapting the fish to surface feeding the reason that other forms did not survive; for we have in *Chologaster* a fish with just the same structure of mouth as in *Amblyopsis* and *Typhlichthys*, provided with an equally large air bladder (if that can be considered as having anything to do with surface habits), and yet living always at the bottom of the water.

Yet that many species enter the cave from the outside waters is proved by the collection of the following species of fishes in the same waters with the blind fishes and the *Chologaster* :—

Two specimens of *Amiurus catus*, half grown; one specimen of *Uranidea* (sp.?), very large; one specimen each, of full size, of two species of Cyprinoids not yet determined, but, as in the case of the cat-fish and bull-head, of the same species as those collected in the Green River just outside of the cave. All five of these specimens were as highly colored and had their eyes as perfect as their kin in the Green River. They were all in good condition, and when captured were in every way apparently as well off as if in daylight.

A large number of insects, small crustaceans, etc., were obtained in the cave, and a few species of plants of the lower forms were collected. The other living specimens

exhibited were a series of crayfish of two species. Of one, the common blind species of the cave, *Cambarus pellucidus*, several specimens were exhibited; most of them were white, but three were of a light drab color. Of the other species, probably the *Cambarus Bartonii*, there was a large specimen of the ordinary color, and another quite small one that was very light colored, while several others now in alcohol were also obtained from the cave in company with the blind species.

In another cave, situated several miles down the Green River from the Mammoth Cave, and on the opposite bank, which was christened "Blind-fish Cave," a number of specimens of the blind Typhlichthys and several blind crayfish were collected. The peculiarity of this cave consists in the fact that from its entrance, under a shelving rock which is considerably above the bed of the Green River, issues a small stream of water which can easily be followed for a short distance, and by crawling along its bed for some few hundreds yards farther. In this cave the blind fishes and blind crayfishes were found not far from its entrance, and, at times, they have been taken by other persons quite out in daylight, yet they are identical in every way with those of the Mammoth and other caves where utter darkness prevails.

Certainly all these facts must be taken into consideration if the attempt is made to account for the origin of cave life, but until the present time many of them have been unknown, and consequently only a very few were used as furnishing proofs of the theories which have been advanced. With these new facts before us it certainly behooves us to be deliberate in drawing our conclusions.

NOTE. Having hinted on this and previous occasions that, from the apparent continuance of marine forms of life in the subterranean regions of the southwest, there may have been caves, of greater or

less extent, to which marine life may have had access at a period long past, notwithstanding the present want of geological proof on the spot by which such an idea can be substantiated, the following quotations from the most eminent writers upon limestone formations and upon the structure of caves in other parts of the world, will show that the suggestion is within the limits of the probable.

Professor DANA, in his "Corals and Coral Islands," p. 360, writes as follows: "The elevated coral limestone, although in general a hard and compact rock, abounds in caverns. They may be due in part to open spaces, or regions of loose texture, in or between the strata. But in most cases they are a result of solution and erosion by the fresh waters of the land, *or the waves and currents of the ocean*, subsequent to the elevation. On the island of Mesia, many caverns open outward in the coral limestone cliff\* and in some were large stalactites."

In the very important work on caves by Mr. DAWKINS, recently published under the title of "Cave Hunting," the learned author, under the heading of "The Various Ages of Caves," states "It is very probable that caves were formed in calcareous rocks *from the time that they were raised to the level of the sea*, since they abound in Coral Islands." After quoting some facts from Dana's work, he goes on to say:

"Calcareous rocks might therefore be expected to contain fissures and caves of various ages. In the Mendip Hills they have been proved by Mr. Charles Moore to contain fossils of Rhætic age, the characteristic dog-fishes *Acrodus minimus* and *Hybodus reticulatus*, the elegant sculptured Ganoid fish, *Gryrolepis tenuistriatus* and the tiny marsupials, *Microlestes* and its allies. This singular association of terrestrial with marine creatures is due to the fact, that while that area was being slowly depressed beneath the Rhætic and Liassic seas, the remains were mingled together on the coast line, and washed into the crevices and holes in the rock.

The older caves and fissures have very generally been blocked up by accumulations of calc-spar or other minerals, and they are arranged on a plan altogether independent of the existing systems of drainage.

It is a singular fact that no fissures or caves should, with the above exception, contain the remains of animals of a date before the Pleistocene age. There can be but little doubt that they were used as places of shelter in all ages, and they must have entombed the remains of the animals that fell into them, or were swept into them by the streams. Caves there must have been long before, and the Eocene, Palæotheres and Anoplotheres met their death in the open pitfalls,

---

\* On p. 194 this cliff is described as "a white and solid limestone, seldom presenting any traces of its coral origin."

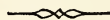


just as the sheep and cattle do at the present time. The Hyænodon of the Miocene had, probably, the same cave-hunting tastes as his descendant, the living hyæna, and the marsupials of the mesozoic age might be expected to be preserved in caves, like the fossil marsupials of Australia.

The chances of preservation of the remains when once cemented into a fine breccia, or sealed down with a crystalline covering of stalgmite, are very nearly the same as those under which the Pleistocene animals have been handed down to us. The only reasonable explanation of the non-discovery of such remains seems to be, that the ancient suites of caves and fissures containing them, and for the most part near the then surface of the rock, *have been completely swept away by denudation, while the present caverns were either not then excavated or inaccessible.*

Such an hypothesis will explain the fact that the non-ossiferous caverns are older than the Pleistocene age, not merely in Europe but in North and South America, Australia and New Zealand. The effect of denudation in rendering the geological record imperfect, may be gathered from the estimate, which Mr. Prestwick has formed, of the amount of rock removed from the crests of the Mendips and the Ardennes, which is in the one case a thickness "of two miles and more," and in the other as much as "three or four miles." Under these conditions we could not expect to find a series of bone caves reaching far back into the remote, geological past, since the caves and their contents would inevitably be destroyed."

See also a quotation from the address by Mr. Prestwick before the Geological Society, on p. 69 of Mr. Dawkins' work, in which the surface denudation by the action of atmospheric water is discussed.



## REGULAR MEETING, MONDAY, DECEMBER 7, 1874.

MEETING this evening at 7.30 o'clock. The PRESIDENT in the chair. Records of preceding meeting read.

The SECRETARY announced the following correspondence :—

From N. Cleaveland, Westport, Conn., Dec. 2; S. G. Drake, Boston, Dec. 3; G. L. Goodale, Cambridge, Nov. 25; S. G. Gould, Manchester, N. H., Nov. 19, Dec. 1, Waldo Higginson, Boston, Nov. 27; E. H. Hitchcock, Amherst, Nov. 14; Charles J. Hoadly, Hartford, Conn., Dec. 2; M. F. Jacob, South Hingham, Nov. 27, Dec. 2; Charles Phillips, Philadelphia, Nov. 26; Dec. 2; Willard P. Phillips, Dec. 5; R.



Ridgway, Washington, Nov. 29; M. W. Shepard, Dec. 4; T. N. Snow, Baker City, Oregon, Nov. 18; Basel, Naturforschende Gesellschaft, Aug. 29; Bräun Naturforschende Verein, Sept. 7; München, K. Bayerischen Akademie der Wissenschaften Sept. 15; New York Genealogical and Biographical Society, Nov. 16; New York Historical Society, Dec. 5; Washington, Smithsonian Institute, Aug. 14; Würzburg, Physikalisch-Medicinische, Gesellschaft, Aug. 22.

The LIBRARIAN reported the following additions to the library :—

*By Donation.*

AGASSIZ, A., of Cambridge, the following works by his father, Louis Agassiz. *Catalogus Systematicus Ectyporum Echinodermatum*. 4to pamph. *Natural History of the Acalephæ of North America*. 2 parts, 4to. *Monographie des Poissons Fossiles Du Vieux Grés Rouge*. 3 parts, text and 40 plates. *Monographie d'Echinodermis*. 4 Liv. and plates. *Mémoire sur les Moules de Mollusques*. 4to pamph. *Études Critiques sur les Mollusques Fossiles*. 4 Liv., 4to pamphlets. *On the Origin of Species*. 8vo pamph. *Contemplations of God in the Kosmos*. 8vo pamph. *Primitive Diversity of Animals*. 8vo pamph. *Ichthyological Fauna of the Pacific Slope*. 8vo pamph. *Classification in the Animal Kingdom*. 8vo pamph. *Buckland's Geologie und Mineralogie*. 2 vols. *Untersuchungen über die Gletscher*. 1 vol., with plates. *Histoire Naturelle des Poissons D'eau Douce de L'Europe Centrale*. 1 vol., with plates. *Nomenclatoris Zoologici Index Universalis*. 1 vol. 12mo. *Nomenclator Zoologicus, Continens Nomina Systematica Generum Animalium Tam Viventium Quam Fossilium*. 1 vol. 4to. *Iconographie des Coquilles Tertiaires*. 4to pamph.

BOLLES, E. C. *Salem Directory for 1872*. 1 vol. 8vo. *Notes of Livermore*. 1 vol. 8vo. *Miscellaneous pamphlets*, 60.

BROOKHOUSE, ROBERT. *Patent Office Report for 1850-51*. 1 vol. 8vo. *Hunt's Merchant Magazine*, 10 numbers. *American Review*, 7 numbers. *The Cultivator*, 100 numbers. *N. E. Farmer*, 105 numbers. *Boston Patriot*, 1811, 1813, 1816. *The Yankee*, 1812.

MINER, A. A., Boston. *Catalogue of the Officers and Students of Tufts College, 1874-5, and Triennial*. 8vo pamph.

PHILLIPS, W. P. *Memorial of Chas. Sumner*. 1 vol., small 4to.

ROBINSON, JOHN. *Coin Catalogues*, 152. *Miscellaneous pamphlets*, 23.

U. S. PATENT OFFICE. *Official Gazette*, Nov. 10, 17, 1874.

WOODMAN, CYRUS, of Cambridge, Mass. *Genealogy of the Woodmans of Buxton, Me.* By C. Woodman. 1 vol. 8vo.

*By Exchange.*

ARCHIV FÜR ANTHROPOLOGIE. Bd vii, Heft I. 1874.

NATURAL HISTORY SOCIETY OF MONTREAL. *The Canadian Naturalist and Quarterly Journal of Science*. Vol. 7. No. 6. Nov., 1874.

NATURFORSCHENDE GESELLSCHAFT IN BASEL, Switzerland. *Verhandlungen, Sechster Theil, Erstes Heft*. 8vo.

NATURFORSCHENDE VEREIN IN BRÜNN, *Verhandlungen*, xi Band. 1872. 8vo.

NATURWISSENSCHAFTLICHEN GESELLSCHAFT "ISIS" IN DRESDEN. *Sitzungs-Berichte*, Jahrg. 1874. Jan-März. 8vo.

NEW YORK GENEALOGICAL AND BIOGRAPHICAL SOCIETY. *Genealogical and Biographical Record*, Vol. v, No. iv, Oct., 1874.

PHYSIKALISCH-MEDICINISCHE GESELLSCHAFT IN WÜRZBURG, Bavaria. *Verhandlungen, Neue Folge Bd., vii*. 1874. 1 vol. 8vo.

SOCIÉTÉ ENTOMOLOGIQUE DE BELGIQUE. Annales, Tome xvi, 1873. 1 vol. 8vo.  
SOCIÉTÉ VAUDOISE DES SCIENCES NATURELLES IN LAUSANNE. Bulletin, Vol.  
xii. No. 72. 1874.

PUBLISHERS. Forest and Stream. Gardener's Monthly. Gloucester Telegraph.  
Hardwicke's Science Gossip. Haverhill Gazette. Ipswich Chronicle. Lawrence  
American. Lynn Reporter. Lynn Transcript. Medical and Surgical Reporter.  
Nation. Nature. Peabody Press. Salem Observer. Salem Post. Silliman's  
Journal.

A. Graham Bell, of Salem, was elected a resident member.

Gen. H. K. OLIVER gave a brief résumé of a recent valuable donation from the heirs of the late Gen. Benjamin F. Edmands, of Boston, of a large collection of music, both printed and in manuscript, being part of the library of the Boston Academy of Music, an organization that flourished in Boston from 1833 to 1857, and did much to promote the culture of good music in the metropolis. Gen. Oliver spoke in high terms of commendation of several of the early members, specifying more particularly the late Lowell Mason, for many years a leading spirit in musical circles, and Gen. Edmands, a gentleman well known for his zeal and interest in public affairs, more especially in those that relate to the military.

Mr. JOHN ROBINSON presented a large collection of catalogues and pamphlets on coins and coinage.

Mr. F. W. PUTNAM presented from Mr. Albert W. Edmands, of Charlestown, an interesting document containing the signatures of the Hon. Anson Burlingame, the ambassador from China, and the members of the Chinese Embassy and suite, when on a visit to this country in 1868.

To the manuscript department Mrs. J. F. WORCESTER presented the genealogical papers of the late Dr. J. F. Worcester.

Votes of thanks were passed to the several donors.

Mr. JOHN ROBINSON gave an instructive and interesting account of the processes in the manufacture of glass, in all its varieties, tracing it from its origin to the elaborate and skilful workmanship of the present day, exhibiting specimens and illustrating the methods of mixing and melting by drawings on the blackboard.

Previous to the adjournment, Gen. OLIVER alluded to the Transit of Venus, which was to occur on the 8th, and mentioned the plans that have been adopted by several of the governments of Europe and of the United States, in locating a line of observers in different places to note the particular phases of this occurrence; and the importance of these observations in determining facts in astronomical science.

Adjourned.



#### REGULAR MEETING, MONDAY, DECEMBER 21, 1874.

MEETING this evening at 7.30 o'clock. The PRESIDENT in the chair. Records of preceding meeting read.

The SECRETARY announced the following correspondence :—

From E. J. Attinelli, New York, Dec. 3, 10; Henry B. Dawson, Morrisania, N. Y., Dec. 10; L. C. Herrick, Woodstock, O., Dec. 1; J. Warren Merrill, Cambridgeport, Dec. 5; M. J. Peabody, Boston, Dec. 4; Charles Phillips, Germantown, Penn., Dec. 9; Robert Ridgway, Washington, Dec. 8; J. Henry Stickney, Baltimore, Md., Dec. 17; Henry White, New Haven, Conn., Dec. 7; W. C. Wood, Wrentham, Dec. 12; William H. Yeomans, Columbia, Conn., Dec. 12; Boston Society of Natural History, Dec. 18; Brockton Public Library, Dec. 15; Buffalo Historical Society, Dec. 7; New Hampshire Historical Society, Dec. 14; Rhode Island Historical Society, Dec. 10.

The LIBRARIAN reported the following additions to the library :—

*By Donation.*

BAKER, CHAS. H., of Annapolis, Md. Annual Register of the U. S. Naval Academy at Annapolis, Md. 1874-5.

BOARDMAN, SAM'L L., of Augusta, Me. The Ornamental and Useful Plants of Maine, by F. L. Scribner. 8vo. pamph. Some Materials towards a History of the Cattle of Maine, by S. L. Boardman. 8vo pamph.

COGSWELL, WM. Miscellaneous pamphlets, 340.

GREEN, S. A., of Boston. Miscellaneous pamphlets, 14.

KIMBALL, JAMES. Cape Ann Advertiser, Nov. 13, 20, 28, Dec. 4, 11, 1874.

LEA, ISAAC, Philadelphia. Index to Vol. i to xiii, Observations on the Genus Unio. 4to pamph.

LEE, JOHN C. Commercial Bulletin, Nov. 21, 28, Dec. 5, 1874.

MEMORIAL HALL LIBRARY, at Andover, Mass. Catalogue of. 1 vol. 12mo.

THOMPSON, C. O., of Worcester, Mass. Fifth Annual Catalogue of the Worcester Free Institute, 1874-5.

U. S. PATENT OFFICE. Official Gazette for Nov. 24, Dec. 1, 1874.

WARNER, OLIVER. Mass. Public Documents for 1873. 5 vols. 8vo.

WATERS, J. LINTON. Miscellaneous pamphlets, 14.

YEOMANS, W. H., of Columbia, Conn. Report of the Secretary of the Conn., Board of Agriculture. 1873-4. 1 vol. 8vo. Miscellaneous pamphlets, 30.

*By Exchange.*

ACADÉMIE ROYALE DES SCIENCES, ARTS ET BELLES-LETTRES, Caen, France. Memoires, 1872. 2 vols. 8vo.

KÖNIGLICH BAYERISCHEN AKADEMIE DER WISSENSCHAFTEN IN MÜNCHEN. Sitzungsberichte der philosophisch-philologischen und historischen Classe. Heft v, vi. Heft. i, ii, iii. 1873. Sitzungsberichte der Mathematisch-physikalischen Classe. Heft. iii. 1873. Heft. i, ii. 1874. Ueber den Einfluss des Freiherrn Justus von Liebig auf die Entwicklung der Physiologie. 4to pamph. 1874. Dr. Justus Freiherrn von Liebig zum Gedächtniss. 4to pamph. 1874. Justus Freiherr von Liebig Als Begründer der Agrikultur-Chemie. 4to pamph. 1874. Gedächtniss Rede auf König Johann von Sachsen. 4to pamph. Ueber Deutschlands Weltstellung. 8vo pamph. 1874.

MARYLAND HISTORICAL SOCIETY. The Lords Baltimore: by J. G. Morris, D.D. 8vo pamph. 1874.

SOCIÉTÉ D'ACCLIMATATION IN PARIS. Bulletin Mensuel, 3me Série, Tome 1. Nos. 7, 8. Juillet-Aout. 1874.

ST. GALLISCHE GESELLSCHAFT, ST. GALLEN. Bericht. 1872-73, 1 vol. 8vo.

PUBLISHERS. American Naturalist. Forest and Stream. Gloucester Telegraph. Hardwicke's Science Gossip. Haverhill Gazette. Lawrence American. Lynn Reporter. Lynn Transcript. Medical and Surgical Reporter. Nation. Nature. Quaritch's Catalogue. Peabody Press. Salem Observer. Salem Post.

Mr. F. W. PUTNAM noticed some of the very important archæological discoveries of the Hayden exploring expedition, and made interesting mention of the cliff dwellers of the Mancos Cañon of the great Colorado region, describing briefly their habitations, as exhibited by photographs which had been taken by the expedition and from information furnished him by Mr. Ingersol, who was



of the party that had made the examination. He then exhibited engravings of somewhat similar dwellings of an ancient race in France, and gave an account of several recent investigations in archæology, both in this country and in Europe.

Mr. ALFRED OSGOOD of Newburyport, gave an account of the alleged lead or silver mines in the vicinity of Newburyport. He leaned to the opinion that the accounts were exaggerated; that the ore found was simply float ore, brought thither by glacial action, and that it was doubtful if there were a vein or mine in the place. He, however, thought that a scientific examination ought to be made to ascertain the fact, and suggested that a party should be detailed from the Institute to make a thorough examination.

Mr. KNOWLTON, of Rockport, differed from Mr. Osgood as to the ore being deposited by glacial action, and was inclined to believe it a genuine vein.

Mr. F. W. PUTNAM suggested that the difference of opinion on this subject indicated the importance of a thorough scientific survey of the state, and he thought that the Institute ought to take some action favoring a survey, and present its views to the Legislature, which would soon receive a report from the Board of Education in relation to the subject.

Hon. GEORGE B. LORING expressed himself in favor of such action, and presented many forcible arguments in furtherance of such a course. He spoke of the practical value of a thorough understanding of the natural resources of a state. The work of agriculture cannot be



properly conducted until the condition and quality of the soil are accurately ascertained, and that which is valuable be improved, and that which is useless avoided. In no way can we avoid a wasteful expenditure of money in exploring the mining and mineral wealth of the land, except by such an investigation into the geological formation where that wealth lies, as to reveal its exact condition. To a scientific knowledge of the mineral deposits of one section of our country, and to a scientific application of enquiry to them, do we owe the most successful mining enterprise of our day. In the early days of copper mining at Lake Superior, vast sums of money were wasted through ignorance, and large amounts of property were abandoned from insufficient exploration of their true value; but in our day scientific research guides the miners on to almost fabulous results. For the business prosperity of our state, therefore, he was in favor of the proposed survey, and doubted not that the Legislature would look with favor upon the proposition. And remembering that upon such enterprises, more than upon mere material endeavor, depends the true reputation of a state, in the eyes of all civilized people, he could not believe that Massachusetts would be backward in taking her stand among the most enlightened, as she long had among the most energetic and thriving commonwealths.

After some further discussion, a committee was appointed, consisting of Messrs. F. W. Putnam, A. S. Packard and E. S. Morse, to prepare a memorial to the Legislature, embodying the views of the Institute, and to report the same for action at the next meeting.

Hugh Elder, of Salem, Francis H. Johnson and George W. W. Dove, of Andover, were elected resident members.







